

MASTER PLAN
MAY 2011

CHIMNEY ROCK STATE PARK



N.C. DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF PARKS AND RECREATION



Hickory Nut Falls



MASTER PLAN
APRIL 2011

CHIMNEY ROCK STATE PARK





ACKNOWLEDGEMENTS

N.C. DIVISION OF PARKS AND RECREATION

Lewis Ledford, Director
 Carol Tingley, Deputy Director
 Don Reuter, Assistant Director
 Mike Lambert, Chief of Operations
 Bruce Garner, Chief of Design and Development Section
 Brian Strong, Chief of Planning and Natural Resources
 Darrell McBane, State Trails Program Coordinator
 Sue Regier, Land Protection Program Head
 Pete Colwell, Land Acquisition Specialist
 Maxwell Rogers, AICP, State Parks Planner
 Tom Jackson, West District Superintendent
 Adrienne Wallace, Chimney Rock State Park
 Superintendent
 Charlie Peek, Public Information Officer
 Marshall Ellis, Mountain Region Biologist
 Tim Johnson, Mountain Region Trails Specialist
 Owen Daniel, Facility Renovation Specialist
 Sean Higgins, Interpretation and Educational
 Program Head
 John Amoroso, Regional Planning & GIS
 Siobhan O'Neal, Exhibits Curator

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OTHERS

The Morse Family
 Chimney Rock Management LLC
 Town Manager of the Town of Lake Lure
 Mayor of the Town of Lake Lure
 Mayor of Chimney Rock Village
 Town of Lake Lure Planning Department
 Chimney Rock Village Council
 Chimney Rock State Park Advisory Committee
 The Nature Conservancy
 Carolina Mountain Land Conservancy
 Foothills Conservancy of North Carolina
 Carolina Climbers Coalition
 Southeast Off-Road Bicycle Organization
 Friends of the Hickory Nut Gorge

CONSULTANTS

Chuck Flink, FASLA, Greenways Inc.
 Brittain Storck, ASLA, Greenways Inc.
 Jason Reyes, AICP, Greenways Inc.
 Matt Hayes, AICP, Greenways Inc.
 Todd Peterson, Greenways Inc.
 Marjorie Strauss, Greenways Inc.
 Chris Stanley, P.E., McKim and Creed, P.A.
 Jonathan Smith, P.E., CPSWQ, CPESC,
 McKim and Creed, P.A.

...AND THE COUNTLESS CITIZENS WHO
 HAVE SUPPORTED AND CONTINUE TO
 SUPPORT THE PARK.



North Carolina Department of Environment and Natural Resources
Division of Parks and Recreation

Beverly Eaves Perdue,

Lewis R. Ledford, Director

Dee Freeman, Secretary

April 27, 2011

Friends and Supporters of Chimney Rock State Park:

The recently established Chimney Rock State Park encompasses one of North Carolina's most iconic landscapes and offers tremendous potential and challenges for creating a world-class state park within the Hickory Nut Gorge. The intent of the state park system has been to craft a 100-year vision, a 25-year master plan and a five-year action plan. The master plan builds upon the unique history of the region while combining natural resource protection with public enjoyment.

Authorized by the 2005 N.C. General Assembly, the state park has grown to more than 4,000 acres, including its signature landmark purchased in 2007 from the Morse family who owned and operated the 996-acre Chimney Rock Park tourist destination. Throughout the land acquisition process – which is ongoing – the park has received significant support from the General Assembly, nonprofit land conservancies, the state's conservation trust funds, nearby communities and North Carolina's citizens.

Aside from the abundance of rare species and habitats, Chimney Rock State Park offers outstanding outdoor experiences, including spectacular vistas from Chimney Rock Mountain and an extensive network of trails for all skill levels. Visitors can hike to the base of Hickory Nut Falls, one of the highest waterfalls in the eastern United States, and enjoy a myriad of special events. The state parks system will continue to work in partnership with local communities and regional stakeholders to support activities, events and visitor opportunities in this cherished tourism destination.

This master plan is a blueprint for long-term development of facilities and protection of critically important natural resources. Such a plan is an organic document that evolves as the park grows and knowledge is gained about the resources and public use. With the plan's completion, Chimney Rock State Park enters a new era with a bold vision. Greenways Inc., a Durham-based landscape architecture firm, developed this master plan in full consultation with state parks staff and the community through a participatory planning process. The result is a long-range, attainable plan balancing outdoor recreation and stewardship.

At all state parks, we are committed to our mission of protecting natural resources, educating our visitors about those resources, and providing quality outdoor recreation. Chimney Rock State Park offers us an outstanding opportunity to fulfill those objectives. That commitment, the continued support of our partners and thoughtful planning will combine for a lasting legacy.

Sincerely,

Lewis R. Ledford

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SUMMARY OF THE MASTER PLANNING PROCESS

The purpose of a master plan is to serve as a long-term guide for the development of park facilities, recreation opportunities, and natural resource protection. It includes an analysis of cultural, scenic, recreational, geologic, and natural resources as well as site conditions, public demand and interest, and development recommendations. The master plan is structured within the scope of a 25-year development plan, and is intended to evolve as the park grows and more knowledge is gained about the park's natural resources.

Shortly after the acquisition of Chimney Rock Park by the State of North Carolina in 2005, the N.C. Division of Parks and Recreation selected Greenways Incorporated of Durham, N.C. as the design consultant for preparation of the park's first master plan. Greenways Incorporated and their engineering subconsultant, McKim and Creed, P.A., were charged with examining Chimney Rock State Park as a whole and evaluating opportunities and constraints for proposed park facilities. The consultant team performed a thorough site inventory and analysis in order to fully understand the existing conditions of the park as well as future park development opportunities. Existing regional planning documents were examined, as well as recreational usage trends based on the North Carolina Outdoor Recreation Plan 2009-2013. Most importantly, the consultant worked closely with the N.C. Division of Parks and Recreation staff to refine a program of use for the park.

Three initial design alternatives were publicly presented in May 2010. The alternatives differed primarily in the extent of development proposed (see Chapter 8: Proposed Park Alternatives). The public was invited to attend an open house meeting held at the Town of Lake Lure. Public comment was also received via U.S. mail and email. All comments received were compiled and are part of this master plan. The input received was instructive and was used to guide the master planning effort. A draft master plan was developed to incorporate public comment and staff input. Upon completion of the draft master plan, a second public comment period commenced on November 29 and concluded on December 13, 2010. State parks staff and the planning team also made a presentation of the draft master plan to the Chimney Rock State Park Advisory Committee.

Finally, this master plan was developed in response to a specific program of public access, natural resource protection, and use that is consistent with other North Carolina State Parks. The planning team also took into consideration the unique opportunities and constraints of the Hickory Nut Gorge region. The master plan is based upon the best mapping data available at the time of its preparation (See Resources and References: Digital Mapping Data). This data is not survey quality; therefore, more detailed soil, geotechnology, topographic, hydrological, ecological and other studies may be warranted in future phases of design in order to fully assess feasibility. Since planning is a dynamic process, the availability of more detailed information over time may result in a final built product that is different than that depicted in this master plan.



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MASTER PLAN
MAY 2011

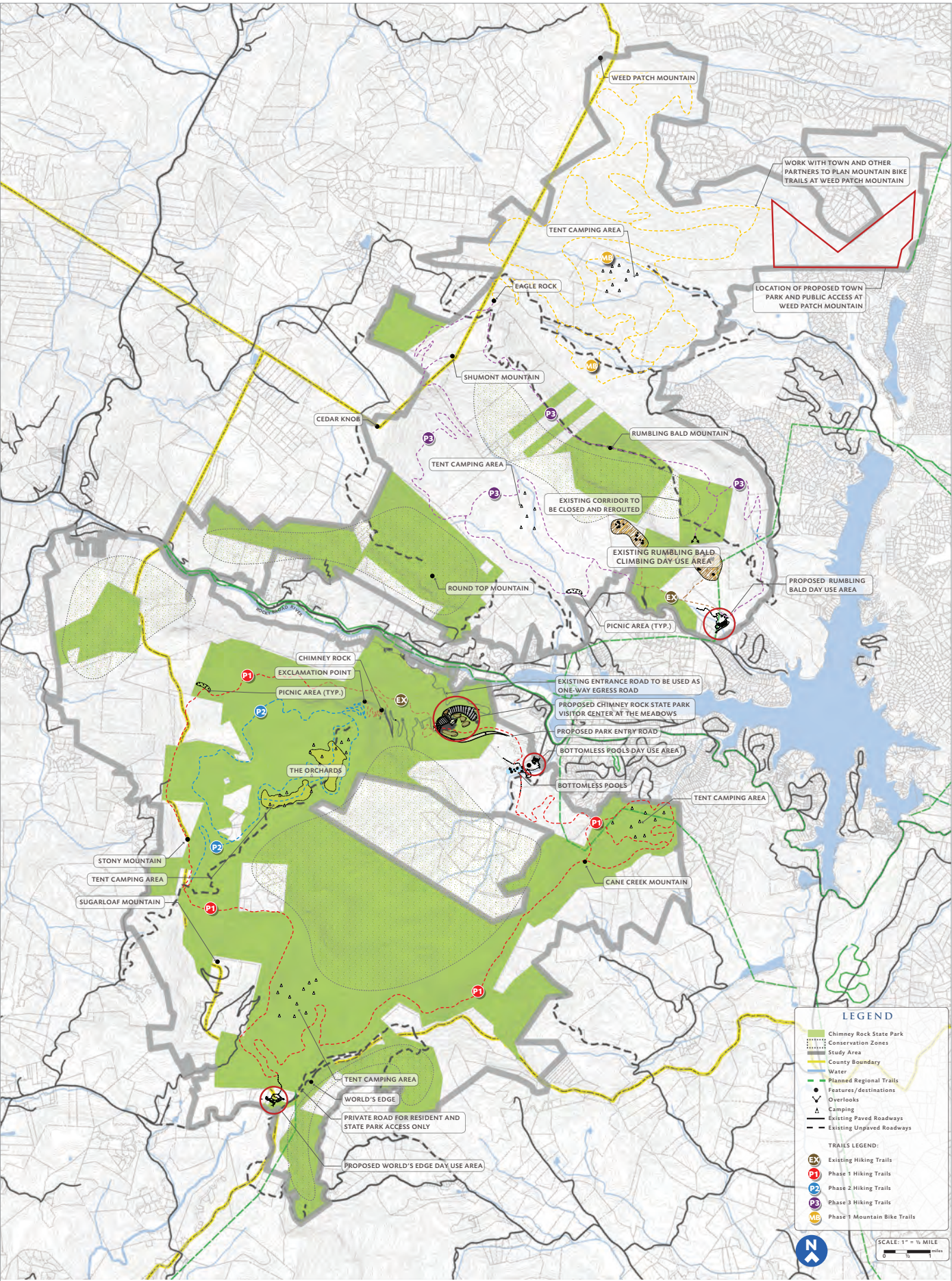
CHIMNEY ROCK STATE PARK



EXECUTIVE SUMMARY

N.C. DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF PARKS AND RECREATION

CHIMNEY ROCK STATE PARK MASTER PLAN





EXECUTIVE SUMMARY

INTRODUCTION

Chimney Rock State Park is a world-class destination park located on the eastern edge of the Blue Ridge Mountains in southwestern North Carolina. The state park is comprised of notable landscapes and significant ecological resources, most of which are located within the Hickory Nut Gorge region. The 4,531-acre park straddles four counties: Buncombe, Henderson, Polk and Rutherford.

Chimney Rock State Park is a tremendous natural resource, containing high quality, intact, and unique natural communities, rare species of plants, animals, rock outcrops, steep slopes, balds and waterfalls. The state park contains a diverse combination of flora and fauna due to its proximity within two different physiographic regions, the southern Blue Ridge Mountains and the Piedmont, and encompasses eight significant natural heritage areas, recognized for the presence of rare species and high quality natural communities. The state park also contains a number of important natural communities characterized by vegetation composition and appearance, wildlife, topography, hydrology, soils and other abiotic factors.

VISION

This master plan is structured within a 100-year vision, 25-year master plan and 5-year action plan for Chimney Rock State Park. The vision for the future of the state park builds upon the unique history of the former Chimney Rock Park while conserving important natural areas and meeting the needs of future park visitors. The following statement articulates the vision for the state park:

Chimney Rock State Park will be a destination that enhances the stewardship and enjoyment of the state's natural and cultural resources; a place that provides a range of nature-based recreation experiences consistent with the ecological character and scenic beauty of Hickory Nut Gorge; which supports interpretive programs that educate and inform visitors about the park's unique flora and fauna, distinct geology, sensitive and endangered species, and conservation and preservation practices.

MISSION AND GOALS

The N.C. State Parks System exists for the enjoyment, education, health and inspiration of all citizens and visitors. The mission of the state parks system is to:

“Conserve and protect representative examples of the natural beauty, ecological features and recreational resources of statewide significance; to provide outdoor recreational opportunities in a safe and healthy environment; and to provide environmental education opportunities that promote stewardship of the state's natural heritage.”



Specifically for Chimney Rock State Park, the mission is to satisfy the vision set forth in this master plan and to ensure that the facilities and operations of the state park conserve and protect the natural assets while offering sustainable visitor access and use of the park and its resources. The mission will be achieved through five principal goals.

Goal 1: Develop a conservation and resource management program that prioritizes sensitive natural heritage areas and outlines a comprehensive land conservation strategy for existing and future parkland.

Goal 2: Provide a variety of high quality, sustainable, natural resource-based outdoor recreation opportunities to meet the diverse needs of park visitors.

Goal 3: Expand interpretive opportunities through the establishment of Chimney Rock State Park educational programs and the development of new day use areas and facilities.

Goal 4: Centralize park facilities to improve access and operational efficiency between park users and management.

Goal 5: Explore the feasibility of establishing a network of regional trails that links park and other public areas within the Hickory Nut Gorge region, thereby strengthening the local economy and enhancing community activity.

This page: Rocky exposed cliffs with the Rocky Broad River below.



PARK DEVELOPMENT PROGRAM

The Chimney Rock State Park development program will satisfy the vision, mission and goals through three principal strategies: *Conservation Management; Education and Stewardship; and Access and Recreation.*



Protecting natural assets

CONSERVATION MANAGEMENT

Where there is a high concentration of rare species and wildlife habitat as well as significant natural features, construction of facilities will be limited. These areas will provide opportunities for hiking, nature study, photography, scientific research, and other appropriate low-impact activities.



Providing opportunities for learning and stewardship

EDUCATION AND STEWARDSHIP

Part of the N.C. Division of Parks and Recreation's mission is to provide opportunities for learning and stewardship of natural resources. To accomplish this within Chimney Rock State Park, interpretive and educational facilities and programming will be developed to serve students, teachers, university researchers and the general public.



Providing access to unique sites and recreation activities

ACCESS AND RECREATION

Chimney Rock State Park offers exceptional opportunities for access to scenic vistas, breathtaking landscapes and challenging outdoor activity. Specific land and resource areas of the park will be available for a diverse range of outdoor recreation, environmental education and public use. These activities will be encouraged and supported through programs that promote sustainable access and use. It is critically important that recreation areas of the park be capable of supporting use for generations to come.

CHIMNEY ROCK STATE PARK LANDS

To accomplish park expansion, the N.C. Division of Parks and Recreation will continue its practice of partnering with conservation organizations, local governments and landowners to acquire, conserve and protect additional lands that fulfill the purpose of Chimney Rock State Park. Natural resource protection, scenic viewshed preservation, outdoor recreation and public access are some of the primary motives for pursuing additional lands and resources for Chimney Rock State Park.

VISITOR CENTER

A proposed 6,500 square foot visitor center building will be constructed on the southern end of the Meadows. The visitor center is comprised of a new building, attraction ticket office, expanded public parking, park operations and management offices. The building will be designed and implemented using green building strategies to attain Leadership in Energy and Environmental Design (LEED®) certification. The building will support visitor reception and lobby, classrooms, offices, exhibit space, concessions, public toilets and storage. The design program will incorporate low impact construction methods such as the use of native construction materials, solar and geothermal heating and cooling (where feasible), rainwater collection, and stormwater best management practices.



ATTRACTION TICKET OFFICE

For visitors wanting to ascend to the top of Chimney Rock Mountain from the Meadows, a new ticket office will be constructed adjacent to the proposed visitor center, and connected to the visitor center via a covered walkway. The ticket office will be designed and implemented using the same environmental principles as the visitor center.

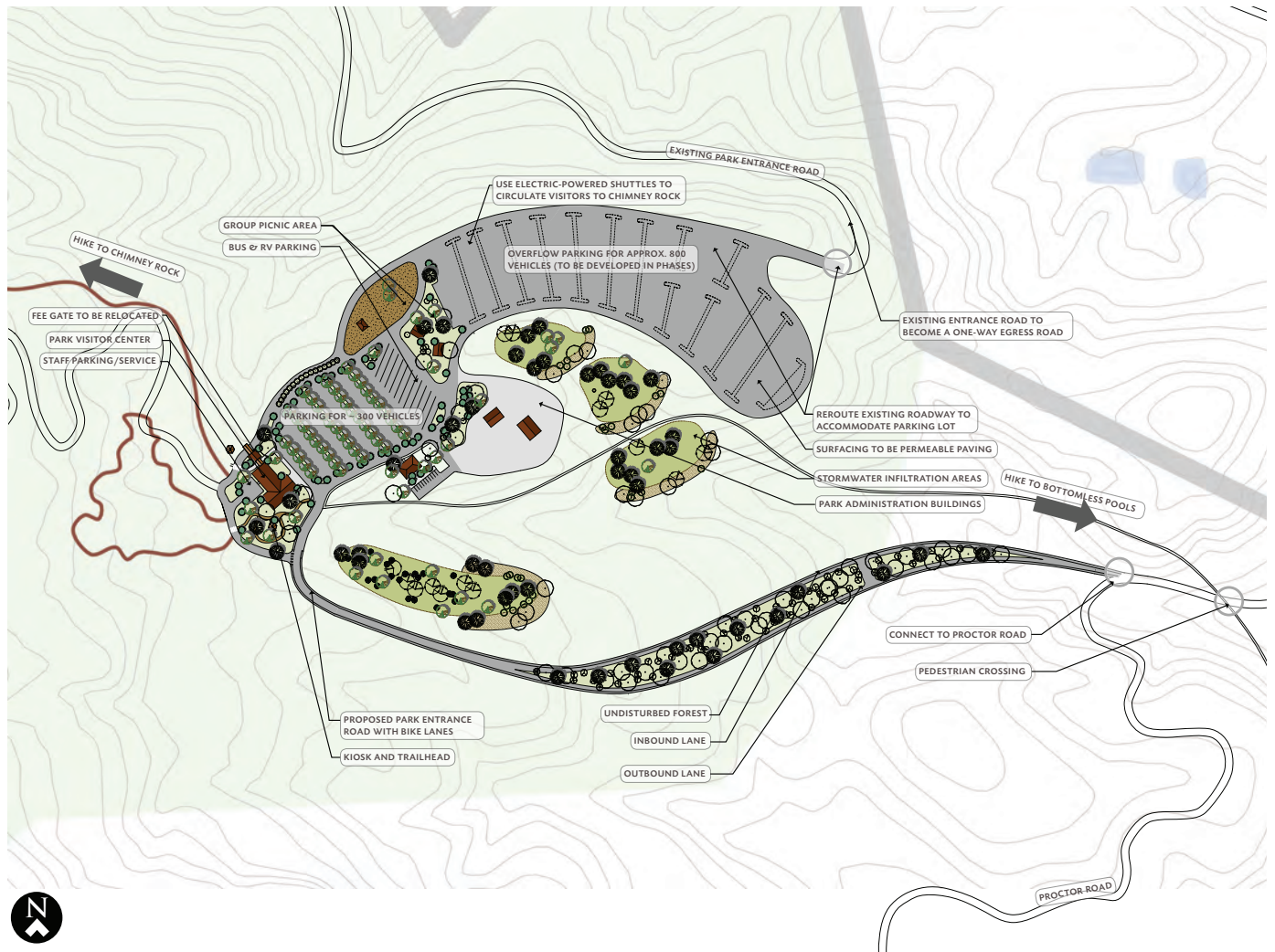
PUBLIC PARKING

Public parking at the Meadows will utilize permeable paving to reduce stormwater runoff where feasible. The Meadows will accommodate more than 300 cars, 20 busses, RVs, and vehicles with trailers, and bicycles. Construction will involve realignment of the existing entrance roadway, minimal clearing of existing wooded areas, and the installation of stormwater infiltration areas to capture first flush flows from the parking areas.

PARK OPERATIONS AND MANAGEMENT OFFICES

In addition to the visitor center building, new park operation, management, and maintenance offices will be constructed at the eastern end of the Meadows. The purpose of these offices is to centralize park operations staff, maintenance equipment, and supplies. These offices will be designed and implemented using the same environmental principles as the visitor center.

VISITOR CENTER AT THE MEADOWS





ACCESS AND CIRCULATION

A new access and circulation strategy is proposed for Chimney Rock State Park that includes support for auto, transit, bicycle and pedestrian travel. One of the primary goals of the new access and circulation strategy is to help alleviate automobile congestion on U.S. Route 64/74A through Chimney Rock Village and the Town of Lake Lure.

NEW STATE PARK ENTRANCE ROAD

A new state park entry road will be constructed from the Town of Lake Lure, connecting to the lower portion of Proctor Road. From its intersection with Proctor Road, the new road will feature a split inbound and outbound lane design to minimize impact to the existing forest canopy. The roadway will be built to modern standards, with bicycle lanes on both the inbound and outbound lanes. The lower portion of Proctor Road will be widened to accommodate new traffic flow. The current entrance road from Chimney Rock Village will be transformed into a state park exit road.

HICKORY NUT GORGE TRANSIT CIRCULATOR

A transit circulator, operated independently from Chimney Rock State Park, is proposed for the Hickory Nut Gorge region. The circulator will be similar to those operated at United States National Parks, such as the Island Explorer at Arcadia National Park. The circulator will make use of fuel-efficient vehicles (i.e. natural gas or electric powered busses) and will include transit stops in Chimney Rock Village, Town of Lake Lure and Chimney Rock State Park. The circulator will encourage visitors to park their cars at designated locations and board fuel efficient busses for transport throughout the region to popular destinations. With a circulator in place, it is hoped that vehicle congestion throughout the Hickory Nut Gorge region will be minimized, air quality will be improved, and traffic flow will be more efficient.

UTILITY CORRIDOR

New utility lines will be installed in conjunction with the construction of a new entrance road from the Town of Lake Lure to the Meadows at Chimney Rock State Park. A new water line, along with a pump station, will be installed and connected to the Town of Lake Lure water supply. A new sanitary sewer line will also be installed from the Meadows to the Town of Lake Lure to service the new visitor center, and park operations and management offices. A new, modern communications line will also be installed to deliver improved voice, high-speed data and internet into the state park.

DAY USE AREAS

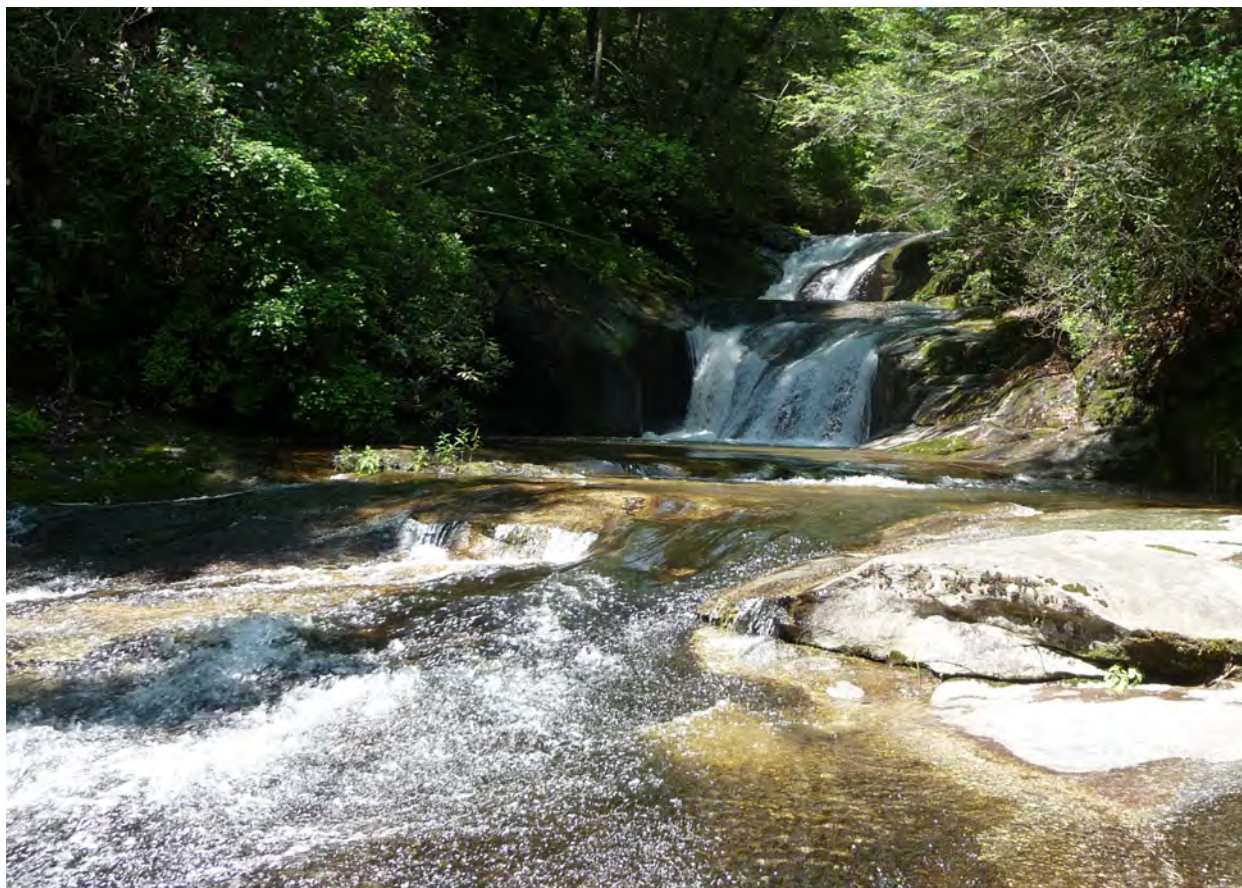
Three new day use areas will be built at Bottomless Pools, World's Edge and Rumbling Bald. For all proposed day use areas, buildings will be designed and implemented using sustainable construction strategies.

BOTTOMLESS POOLS DAY USE AREA

The Bottomless Pools attraction will be developed into a state park day use area. The historic home associated with Bottomless Pools will be used as a contact station and information center. Some of the original viewing platforms will be restored and reopened for public access and use. The existing trail system will also be restored and constructed to provide new observation platforms for viewing of the famed Bottomless Pools. A public parking lot will support parking for up to 60 cars. Bottomless Pools will provide parking for connections to Chimney Rock State Park trails and Hickory Nut Gorge regional trails.

WORLD'S EDGE DAY USE AREA

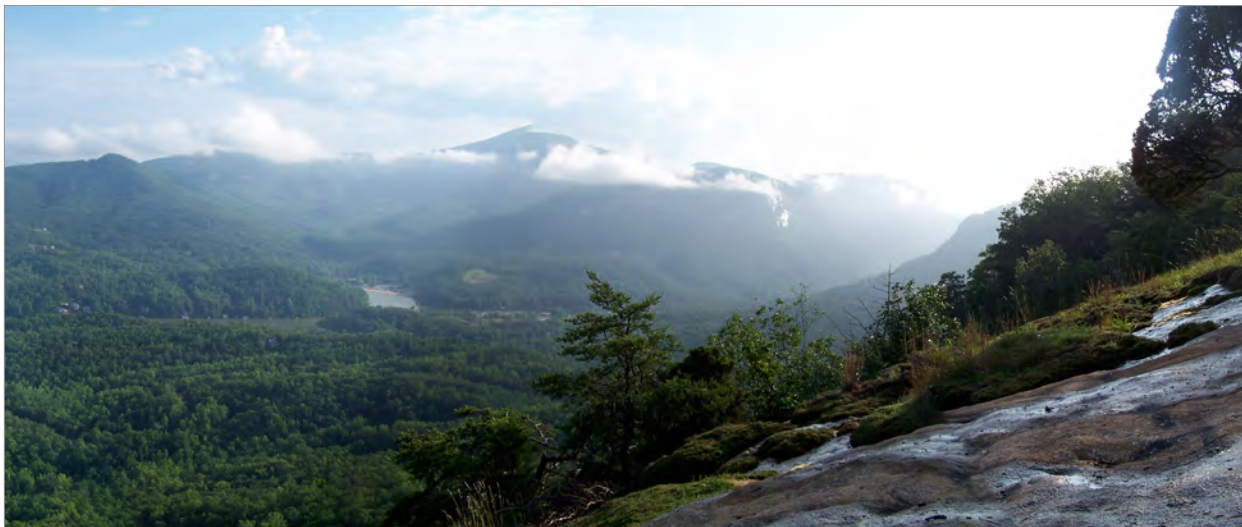
The World's Edge day use area will include an overlook, public parking, a contact station, trail concessions, and picnic areas.



Bottomless Pools

RUMBLING BALD DAY USE AREA

An undersized day use area already exists off of Boys Camp Road on the southwest side of Rumbling Bald Mountain. The existing day use area will be improved to support the increase in vehicle parking and a second day use area will be built east of the existing Rumbling Bald climbing day use area. The proposed secondary location off of Boys Camp Road will provide additional accommodation for rock climbing and other passive recreation activities. This new day use area will include public parking for up to 60 cars, picnic areas, toilet building, concessions, and short loop trails for hiking.



View from Rumbling Bald



ATTRACTION FACILITIES

The attraction at Chimney Rock State Park is comprised of many features and facilities formerly operated by the Morse family, most of which are now operated by a concessionaire to the N.C. Division of Parks and Recreation. The following describes the current status and improvements for key elements of the attraction.

ATTRACTION ENTRANCE ROAD

The entrance road from the Meadows to the Cliff Dwellers gift shop will require improvement in order to accommodate two-way auto and bus traffic. This will include widening portions of the road, reinforcing and/or rebuilding retaining walls, and reworking drainage systems.

ELEVATOR AND TUNNEL

The historic tunnel and elevator that takes visitors from Cliff Dwellers to the Sky Lounge is being upgraded and improved with modern elevator equipment in 2011.

CLIFF DWELLERS

The Cliff Dwellers gift shop is generally in good condition but will require some renovation to the exterior and interior.

SKY LOUNGE

The Sky Lounge will be improved in 2011 and later adapted into an interpretive area. The existing shop and food service area will be moved to other venues throughout the state park.

OLD ROCK CAFÉ

The Old Rock Café, located in Chimney Rock Village, will be completely renovated and modernized. The building's interior and exterior will be repainted and refinished, and the restrooms will be expanded to accommodate more visitors.

ATTRACTION TRAILS

The trails of the attraction are one of the most important features of Chimney Rock State Park. Many of these trails are worn and in need of restoration and repair. It will be important to improve these trails to meet minimum standards for public use and safety, in accordance with State of North Carolina guidelines.

STATE PARK HIKING TRAILS

New long distance hiking trails will be developed as part of the expanded Chimney Rock State Park. Trails systems in the southern and northern part of the state park will be connected to the Hickory Nut Gorge regional trail system. Trails of various difficulty, length, and interest are proposed to provide a diverse experience that can be enjoyed by visitors regardless of their abilities. Families, senior citizens, and experienced hikers will have the option to select and plan their trip: from as little as a one to two hour hike, to overnight hikes with primitive camping.





CENTRAL AND SOUTHERN CHIMNEY ROCK STATE PARK HIKING TRAILS

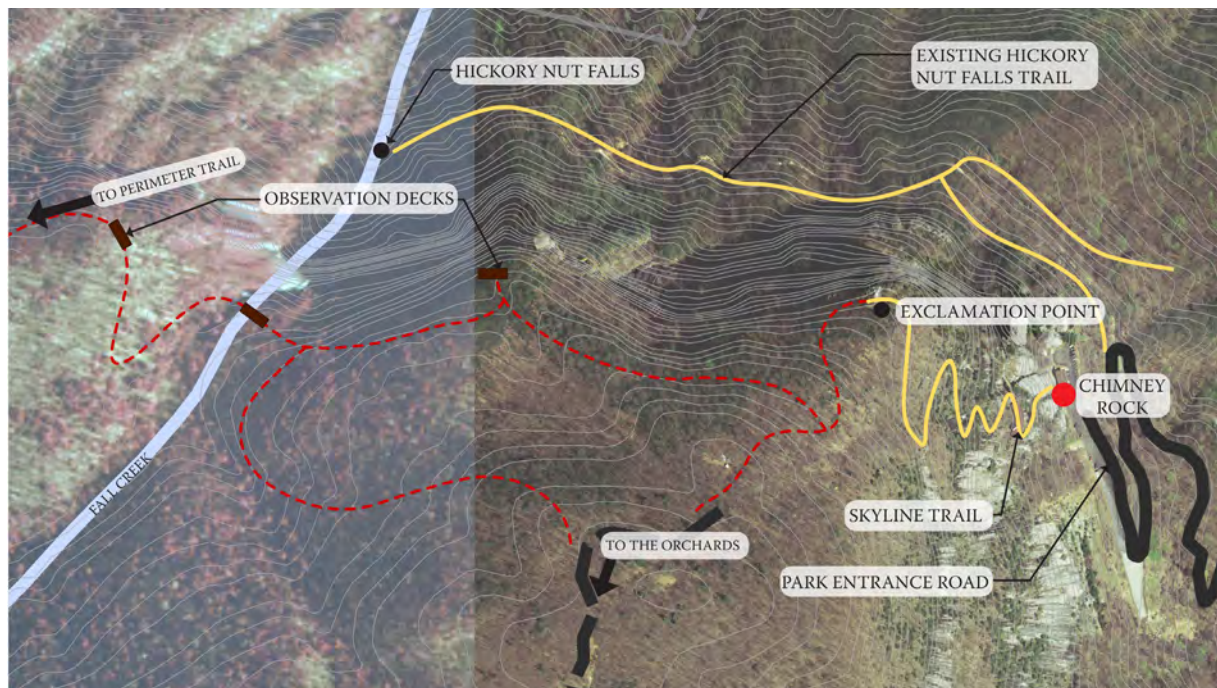
The Chimney Rock Mountain Perimeter Trail is envisioned as an extended, multi-day experience for long distance hikers. This 15-mile moderate to difficult hiking trail will extend from the Orchards on Chimney Rock Mountain to the base of Sugarloaf Mountain, then to World's Edge, and along the ridgeline of Cane Creek Mountain. Along the route, three proposed primitive campgrounds will accommodate those who wish to experience this challenging multi-day hike.

SKYLINE AND CLIFF TRAILS

It is important that Chimney Rock State Park balance the conservation, protection and preservation of natural resources with access and enjoyment of those resources. The existing design of the upper Skyline and Cliff trails cannot be properly managed to support public access and use, due to environmental factors, concerns regarding public health, safety and welfare, and budget constraints.

A new alignment for the Skyline Trail will be established from Exclamation Point along the top of Chimney Rock Mountain to designated observation areas on top of the mountain. Observation platforms will be constructed to provide views of the top of Hickory Nut Falls, Hickory Nut Gorge and Lake Lure. The proposed trail will be constructed inside the existing tree line and not on the cliff faces of Chimney Rock Mountain. The Cliff trail could be opened in the future in cooperation with a contractor who guides adventure tours, such as a via ferrata.

A proposed trail will also be developed connecting the new visitor center at the Meadows to Bottomless Pools. This trail will link with local greenways so visitors can access adjacent regional activities in both Chimney Rock Village and the Town of Lake Lure.



New alignment for Skyline and Cliff trails will be more environmentally friendly.



NORTHERN CHIMNEY ROCK STATE PARK HIKING TRAILS

New hiking trails are proposed for development on the southwest side of Rumbling Bald, between Boys Camp Road and the top of Rumbling Bald Mountain. Hiking trails in northern Chimney Rock State Park are proposed around southern Rumbling Bald, Shumont Mountain, and Eagle Rock. These trails will range from moderate to difficult in terms of accessibility. The trails will be developed in a series of loops in order to provide a level of challenge for various hikers. Backcountry trails are proposed at the far reaches north of Rumbling Bald, where hike-in primitive camping will be available. Backcountry trails in this location are more remote and further from day use areas. Connections to Weed Patch Mountain, and proposed mountain biking trails, will also be possible from this area.

HICKORY NUT GORGE REGIONAL TRAILS

A number of regional trails are proposed throughout Hickory Nut Gorge. Many of these trails are proposed to link into and through Chimney Rock State Park. Regional trails that link to the state park will be developed in coordination with the N.C. Division of Parks and Recreation.

STATE PARK ACTIVITIES

In addition to hiking trails, Chimney Rock State Park will support other natural resource-based activities where visitors can access and enjoy a variety of outdoor pursuits.



ROCK CLIMBING

Chimney Rock State Park will host one of the premiere mountain climbing areas in the southeastern United States. Existing trails and day use parking areas on Boys Camp Road will be improved to accommodate peak season visitation. Climbing areas in the state park will be permitted along the southern facing cliffs of Rumbling Bald Mountain and the boulder fields at Rumbling Bald owned by the N.C. Division of Parks and Recreation. Additional climbing areas in the park will be considered in a comprehensive climbing and bouldering plan.



MOUNTAIN BIKING

A single-track mountain biking trail system is proposed in the vicinity of Weed Patch Mountain. A minimum 10-mile network of trails is recommended, with opportunities for primitive camping. Mountain bike enthusiasts will access Weed Patch Mountain through a parcel owned by the Town of Lake Lure from Buffalo Creek Road. The Town of Lake Lure plans to develop a park and trailhead facilities at this location. Management of the mountain bike trails will be in partnership with the Town of Lake Lure, the mountain bike community, and the N.C. Division of Parks and Recreation.



PRIMITIVE CAMPING

All proposed camping will be primitive, with access to the trail network. Four primitive campgrounds will be located throughout Chimney Rock State Park. Visitors will access primitive campgrounds by permit and will be required to backpack to the campsites. Primitive campgrounds will be located at:

- *Orchards – top of Chimney Rock Mountain*
- *World's Edge*
- *Cane Creek Mountain*
- *Rumbling Bald Mountain*



PICNICKING

Picnicking will be made available to park visitors at all day use areas and at the visitor center. Some picnic areas are proposed along the hiking trails in north and south Chimney Rock State Park. These more remote picnicking areas will be implemented based on demand and operational considerations.

INTERPRETIVE FACILITIES

In addition to the educational facilities proposed at the visitor center, there are a variety of opportunities to interpret the natural heritage of the park and the region. The development of outdoor exhibits at day use areas and along hiking trails will form an interpretive network. The network will be self-guided or organized by park staff as guided hikes or educational programs. The scenery in Chimney Rock State Park will be enjoyed from vistas and viewing platforms that incorporate interpretive signage. The overlooks will be strategically located along trails and at some day use areas.



1 SITE CONTEXT & HISTORY

SITE DESCRIPTION

Chimney Rock State Park is part of the larger Southern Appalachian Mountain range that extends from northern Alabama to northern Virginia. It is located on the eastern edge of the Blue Ridge Mountains in southwestern North Carolina, situated within a band of mountains and foothills, known geologically as the Inner Piedmont Belt. The park is 25 miles southeast of Asheville, North Carolina.

Chimney Rock State Park is comprised of notable landscapes and significant ecological physiographic regions. Portions of the state park are located in Buncombe, Rutherford, Polk and Henderson counties, and include the following: Chimney Rock Mountain, Hickory Nut Falls, World's Edge, and portions of Rumbling Bald, Stony Mountain, and Cane Creek Mountain. A 4,531-acre expanse, Chimney Rock State Park straddles two physiographic regions (Blue Ridge Mountains and Piedmont), as can be seen in Figure 1.1. The regional context and park study area can be seen in Figures 1.2 and 1.3.

Most of the state park is also located within Hickory Nut Gorge, a geographic region which extends northwest to southeast from the Continental Divide south to Lake Lure. The gorge is carved by the Rocky Broad River, which flows between the exposed granite domes and cliffs of Round Top Mountain and Chimney Rock Mountain, along U.S. Route 64/74A. The park contains one of the largest concentrations of rare species within the Blue Ridge Mountains and is known to support over 90 rare plant species, of which three dozen have state or federal designations. The Hickory Nut Gorge Macrosite comprises the entire length of the gorge and covers nearly 30,000 acres in Buncombe, Henderson, Polk, and Rutherford counties. It is significant for containing rare plant, animal, and natural communities. With its large size and low degree of fragmentation, the macrosite has a good prospect for long-term viability. This viability is increased by excellent landscape connections southward along the Blue Ridge Escarpment towards South Carolina, as well as northward and eastward toward the South Mountains. Such large, unfragmented landscapes provide benefits to both common and rare species at the local level as well as at larger scales. The park will play a prominent role in landscape-scale protection, as less than one-third of the macrosite has any level of formal protection.

Lake Lure, the area's most notable water feature, is found on the eastern edge of the park. The lake, owned by the Town of Lake Lure, encompasses 720 acres, with 27 miles of shoreline. None of the park property adjoins Lake Lure, but the park provides excellent views of the lake.

HISTORY OF CHIMNEY ROCK STATE PARK

Originally named Hickory Nut Gorge State Park, Chimney Rock State Park is one of eight state parks established as part of the 2002 New Parks for a New Century initiative undertaken by the North Carolina Division of Parks and Recreation. This initiative was launched in conjunction with the North Carolina Department of Environment and Natural Resources' "One North Carolina Naturally" program that sought protection and stewardship of the state's most important natural resource areas. In 2005, with tremendous public support, the North Carolina General Assembly authorized the creation of Hickory Nut Gorge State Park. Early acquisitions for the new state park included a 1,568-acre tract known as World's Edge, land on Rumbling Bald Mountain, and land near the Bat Cave community.



FIGURE 1.1: CHIMNEY ROCK STATE PARK STATEWIDE CONTEXT



FIGURE 1.2: STUDY AREA REGIONAL CONTEXT

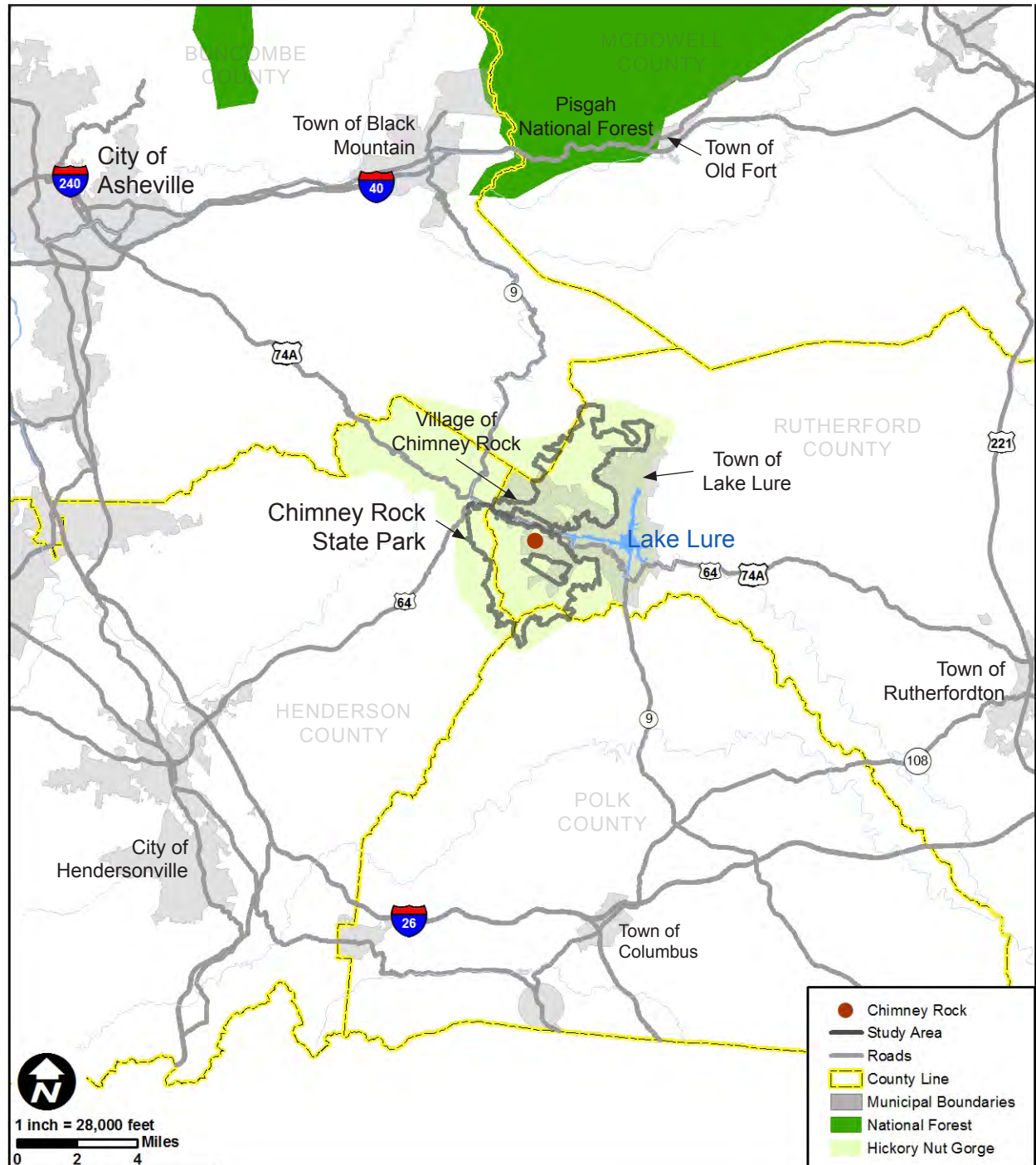
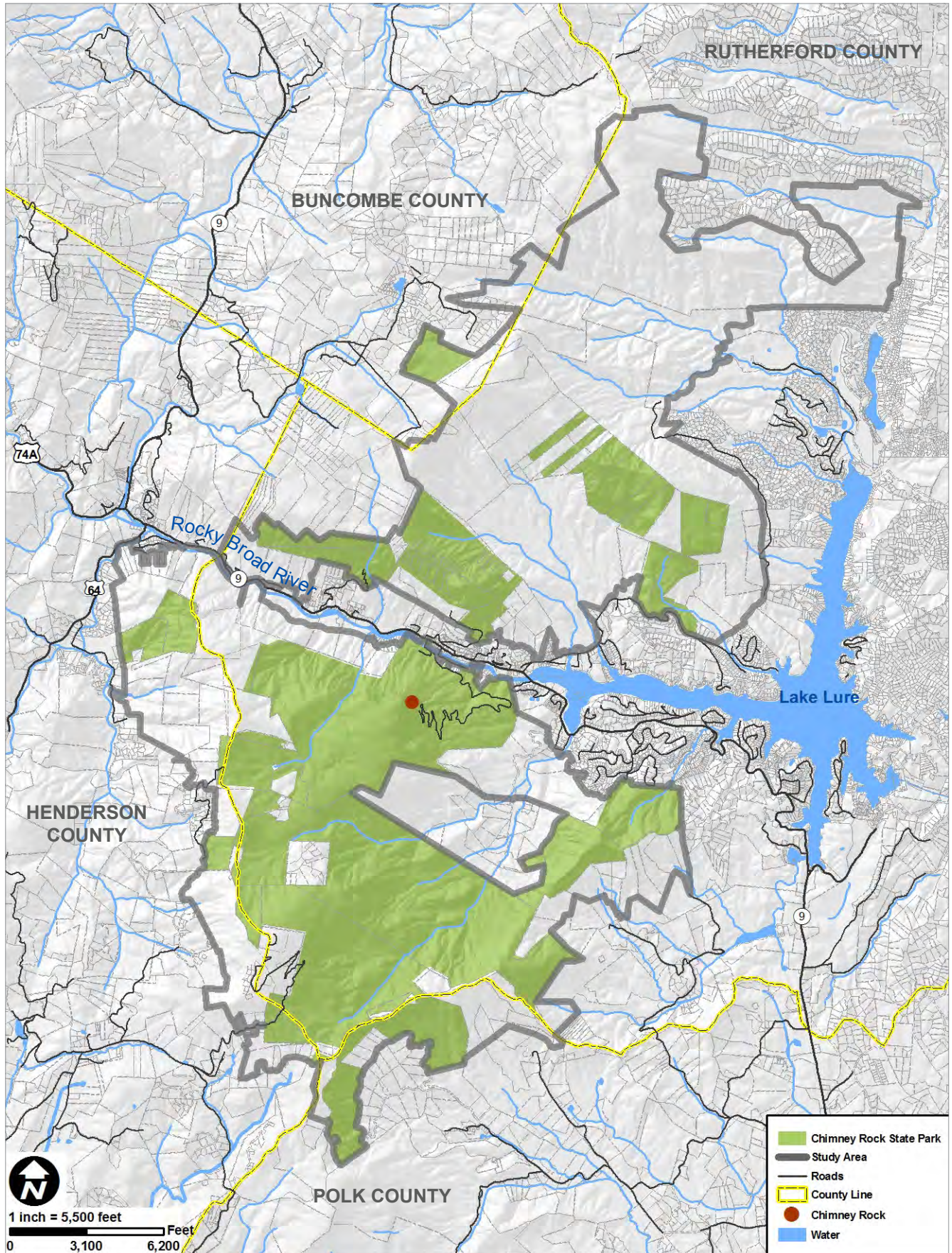




FIGURE 1.3: STUDY AREA PARK LANDS*



*As of February 2011



In 2006, the Morse family, owners of the private Chimney Rock Park, offered their 996-acre park for sale. Shortly thereafter, the State of North Carolina began negotiations to purchase the private park and, in May 2007, completed the purchase as an addition to the growing Hickory Nut Gorge State Park. During that same year, the North Carolina General Assembly authorized \$15 million to support acquisition of additional property at Hickory Nut Gorge State Park. Being traditional for North Carolina state parks to be named after a dominant natural feature, the park name was changed from Hickory Nut Gorge State Park to Chimney Rock State Park through legislative authorization later in 2007.

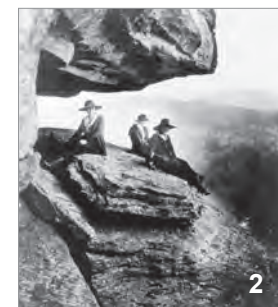
HISTORY OF THE FORMER CHIMNEY ROCK PARK

Jerome B. “Rome” Freeman was the first owner of Chimney Rock, purchasing 67 acres that included the iconic Chimney Rock, Hickory Nut Falls and the cliffs of Chimney Rock Mountain in 1870. Freeman was the first to have conceived the idea of a public park to celebrate the unique geology and spectacular views afforded from Chimney Rock Mountain. By 1887, Freeman constructed a set of stairs and walkways that linked visitors to the top of Chimney Rock. Freeman also built the first walkway from Chimney Rock to Hickory Nut Falls.

Dr. Lucius B. Morse and his brothers purchased Chimney Rock from Freeman in 1902 hoping to capitalize on speculation that a new railroad would be built through Hickory Nut Gorge, increasing tourism to the region.

The railroad through the gorge was never realized, and until completion of the Hickory Nut Gap Road in 1915, travel to the park was extremely difficult. Visitors arrived at the remote park landscape by carriage and on horseback. Governor Locke Craig’s “Good Roads Movement” in 1915 dramatically improved access to the Hickory Nut Gorge region and provided the impetus for increased tourism. Morse completed the entrance road in 1916, linking it directly to the completed Hickory Nut Gap Road and opening the park to automobile travel. On July 4, 1916, Morse, erected a United States flag on top of Chimney Rock to inaugurate the park.

During the 1920s and 1930s much of the park’s original infrastructure was installed. Lake Lure was built in 1927 by Dr. Morse as a speculative resort and land development enterprise. Morse founded Chimney Rock Mountains, Inc. and a subsidiary, Carolina Mountain Power Company, constructed the lake dam. In 1946, Morse constructed a tunnel and elevator to deliver patrons to the top of Chimney Rock, thereby avoiding the arduous climb of 470 steps. During their 105 years of ownership, the Morse family expanded the park, creating an appealing and unique destination.

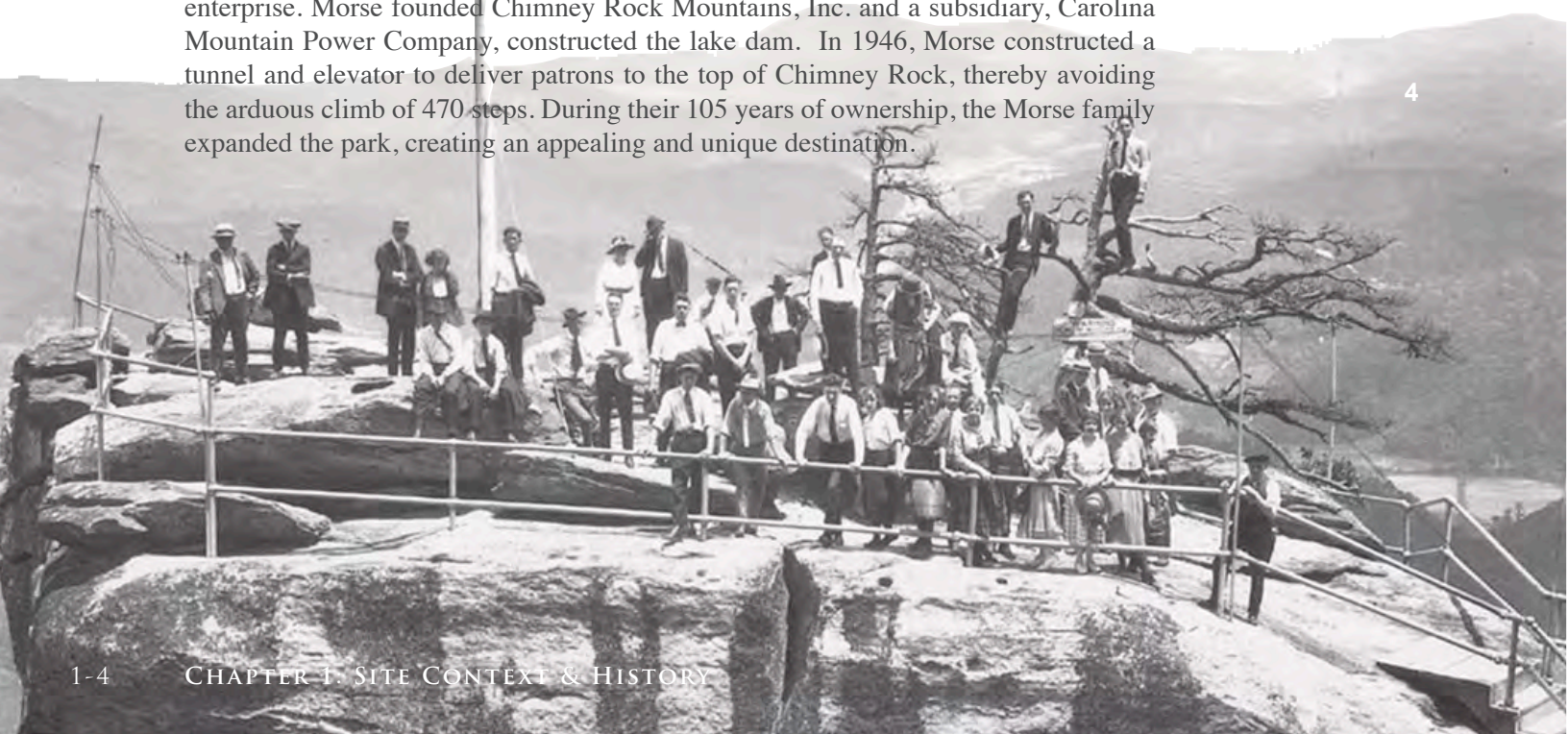


1 Top of Chimney Rock, ca. 1910

2 Opera Box, ca. 1920

3 Park entrance bridge, ca. 1925

4 Top of Chimney Rock, ca. 1918





RECREATION RESOURCES AND VISITATION

THE HICKORY NUT GORGE REGION

The tourism industry in the Hickory Nut Gorge region is undergoing a significant transformation. Once based principally on private attractions owned and operated by entrepreneurs and their families, the gorge is shifting away from institutional and corporate ownership and management. With the State of North Carolina's acquisition of land within the Hickory Nut Gorge, the region will continue to evolve as a tourist destination. The developing Chimney Rock State Park will serve as one of the biggest draws of visitation and tourism for the region in the coming years.

The Hickory Nut Gorge region offers both public and private natural-based recreational resource opportunities for visitors. Opportunities include picnicking, bird watching, fishing, hiking, horseback riding, rock climbing, and water based recreation. Buncombe, Rutherford, Polk, and Henderson counties offer small community and municipal parks, as well as hiking, mountain biking, and equestrian opportunities on state and federal lands such as DuPont State Forest, Pisgah National Forest, and several other western North Carolina state parks. Various outfitters and guides offer tours and recreational opportunities within the gorge.

CHIMNEY ROCK VILLAGE & TOWN OF LAKE LURE

Chimney Rock Village is situated along the historic Hickory Nut Gap Road (U.S. Route 64/74A) and is the location of the existing Chimney Rock State Park entrance. Village merchants have created the Community Development Association (CDA) to promote economic revitalization of the Chimney Rock Village area. The CDA is also broadening the tourist economy through the renovations of public and private places. A special focus has been placed on public access to the village's three-mile portion of the Rocky Broad River, which accommodates public access to the water providing an overall pleasant environment for guests, visitors, and residents.

The Town of Lake Lure is located one mile east of the current entrance to the park. The Town offers lodging, retail, commercial, and restaurant services for residents and visitors. The Town operates a park system consisting of a waterfront greenway, Morse Park, a marina, and a public golf course. The Beach at Lake Lure accommodates swimming and sunbathing.



View west into Hickory Nut Gorge from Lake Lure



FORMER CHIMNEY ROCK PARK

The former Chimney Rock Park has always been the primary attraction for visitors to the Hickory Nut Gorge region. Shortly after it officially opened for business in 1916, more than 14,000 visitors toured the park in 1917 and by 1919, visitation exceeded 35,000. As indicated by Table 1, visitation at Chimney Rock Park has been steady over the years. A record 278,000 visitors came to the park in 1999. Since that time, attendance has declined, in concert with a national decline in tourism coinciding with the tragic events of September 11, 2001 and the 2008-2010 recessionary economy. Nevertheless, the current Chimney Rock State Park remains a popular local, regional and southeastern United States destination. In 2009, the park recorded 210,720 visitors, and in 2010, the number reached 214,728.

At an elevation of 2,280-feet, the geologic feature, Chimney Rock, affords a 75-mile view of the surrounding mountains and Lake Lure. Most of the park's natural features are connected by a network of trails. These trails include the Great Woodland Adventure Trail, the Four Seasons Trail, the Hickory Nut Falls Trail, the Outcroppings Trail, and the Skyline Trail. The Skyline Trail takes visitors from the Chimney Rock to Exclamation Point, the highest publicly accessible point in the park, at an elevation of 2,480 feet.

Other visitor opportunities within the park include picnicking, environmental education, and concessions such as food and retail.

FIGURE 1.4: CHIMNEY ROCK ATTENDANCE CHART 1990-2010

Year	Attendance
1990	134,133
1991	160,727
1992	168,522
1993	210,814
1994	216,330
1995	230,911
1996	232,923
1997	248,049
1998	n/a
1999	278,802
2000	277,961
2001	269,191
2002	275,516
2003	259,966
2004	244,291
2005	215,470
2006	215,764
2007	241,585
2008	212,115
2009	210,720
2010	214,728



INTERPRETIVE THEMES

The 1987 State Parks Act establishes that park lands are to be used by the people of the state and their visitors in order to promote understanding of and pride in the natural heritage of this state. Park interpretation and environmental education are primary ways in which the Division of Parks and Recreation achieves this purpose.

Interpretive themes are summary statements about the ideas, concepts, and stories that are central to the nature and significance of the park. Primary themes provide the foundation from which programs and media are developed. Most major interpretive efforts should relate to one or more of the primary themes. Effective interpretation results when visitors are able to connect these concepts with the park's resources, creating personal meaning from the experience. Interpretive themes for Chimney Rock State Park are outlined on the following page.



Views of Rumbling Bald Mountain from Eagle Rock, June 2009



LIVING ON THE EDGE

The Rocky Broad River cuts through the mountainous terrain to create the eight-mile long gorge, ending in the man-made Lake Lure. This has created distinct geological features and diverse natural community types including Low Elevation Rocky Summit and Low Elevation Granitic Dome. These areas are often too steep or rocky to support a closed forest canopy and many rare plant and animal species have adapted to such harsh environmental conditions. The area's highest peaks and steep slopes host bird species relatively uncommon to the region. Peregrine falcons and ravens prefer these rocky exposed cliffs to lay their eggs. Rocky outcrops facing north also support unique plant species. Life on these outcrops and cliff faces has teetered on the edge for many of these rare species, but with the continued protection of these incredible places, these species can survive.

GEOLOGIC FORCES BEHIND THE STUNNING SCENERY OF HICKORY NUT GORGE

The magnificent cliffs at Chimney Rock State Park tell the story of nearly 500 million years of geologic forces. These unhurried forces include ancient volcanic activity, heat and pressure miles beneath the earth's surface, plate tectonics and erosion. The area is still seismically active with a magnitude 3.1 earthquake occurring eight miles south of Lake Lure in 2007, and historical earthquake reports in the late 1800s giving Rumbling Bald its name.



Rocky exposed cliffs with the Rocky Broad River below.

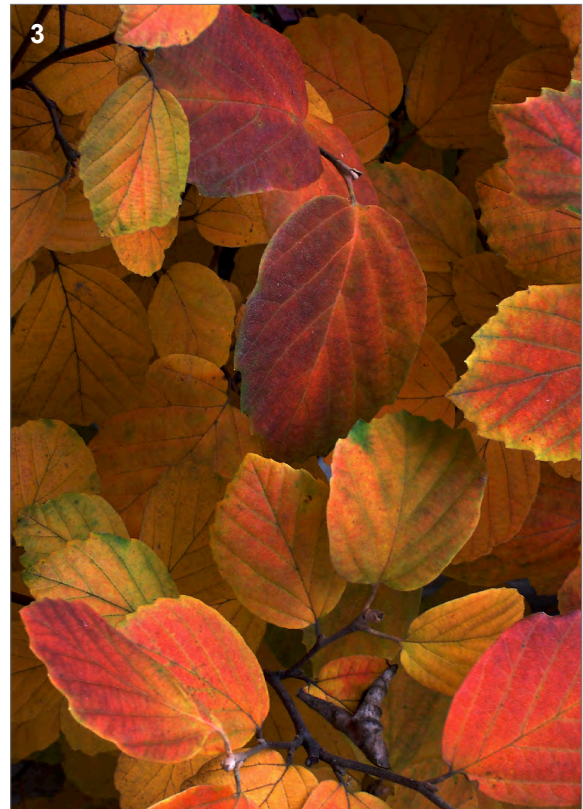


On either side of the river, steep exposed cliffs underscore vegetated ridge tops, demonstrating two distinctly different types of bedrock. The combination of forces of expanding ice between cracks in the cliffs and gravity cause large pieces of cliff to break off. These ongoing rockslides, natural erosive forces and other geological activity have resulted in remarkable landforms including Chimney Rock and the dramatic cliff faces that frame the gorge.

1 Peregrine Falcons; photo by Mike Baird flickr.bairdphotos.com

2 White Rattlesnake Root

3 Large Witch Alder





PARTNERSHIPS FOR PRESERVATION AND SUSTAINABLE TOURISM

The dramatic beauty of Hickory Nut Gorge has attracted visitors to the area since the late 1800s. In 1916, the opening of the privately-owned Chimney Rock Park made the area an even more popular travel destination. Development in the gorge and on lands surrounding Lake Lure reflects the area's popularity. Still, perhaps the greatest significance of Chimney Rock State Park remains its outstanding biological diversity, including numerous species of rare plants and animals. Conservation organizations, private landowners and government agencies worked collaboratively to preserve the lands that collectively became a state park in 2005. Surrounding communities and conservation organizations continue to work collaboratively to find a balance between the economic benefits of tourism and the need to protect the unique resources of Hickory Nut Gorge.



Visitors atop Chimney Rock, June 2009

CULTURAL CONTEXT

CIRCULATION/ACCESSING THE PARK

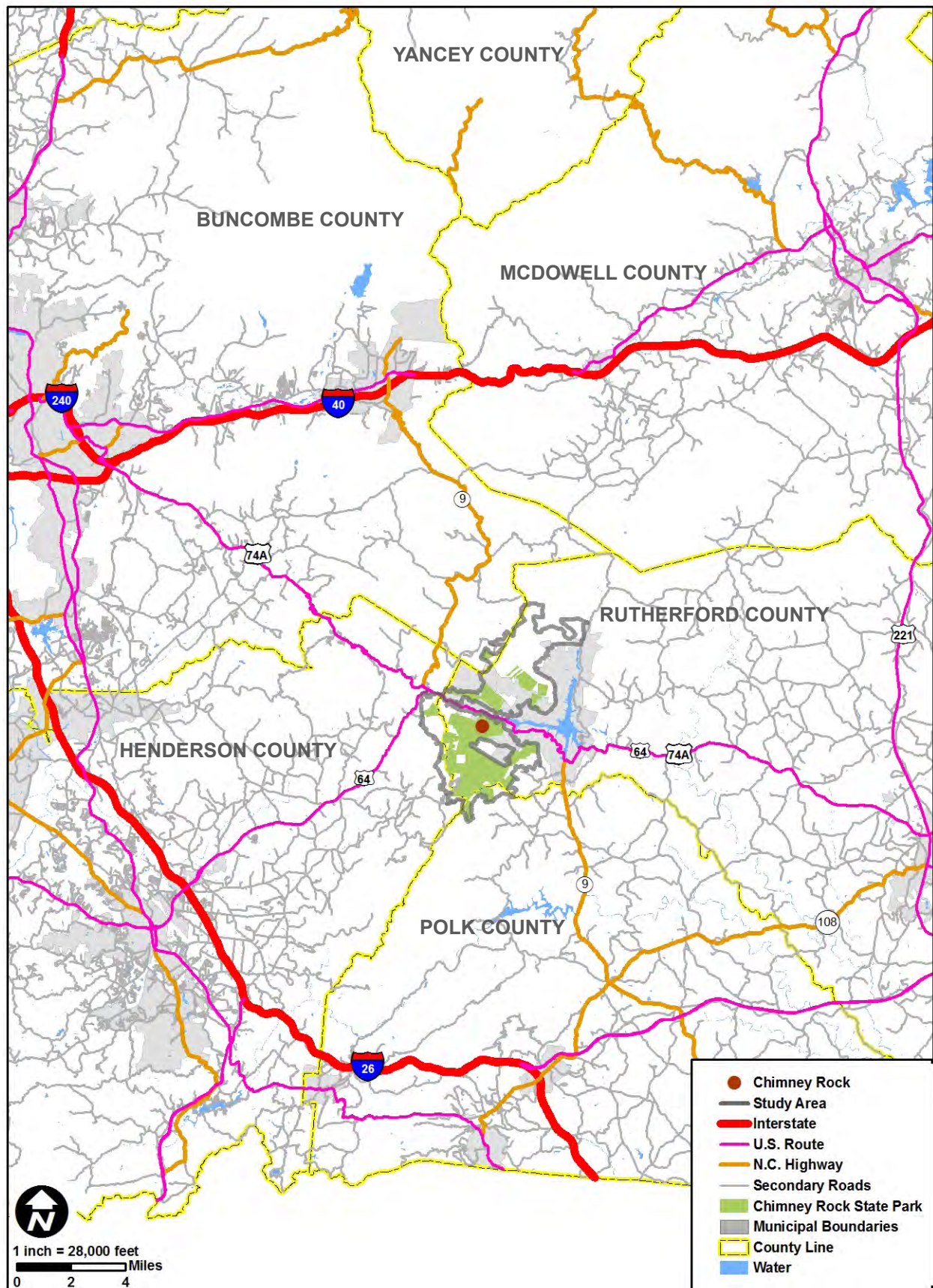
Access to Chimney Rock State Park's main entrance is located off U.S. Route 64/74A, 40 miles south of Interstate 40 from U.S. Route 221, and 17 miles east of Interstate 240 from Asheville as shown on Figure 1.5. Secondary roads lead north on N.C. Highway 9 from Montreat and N.C. Highway 64 from Hendersonville to the park entrance off U.S. Route 64/74A.

Vehicular access is limited in parts of the park study area. Sugarloaf Mountain Road and World's Edge Road terminate in southern parts of the study area but do not penetrate northern portions of park-owned property. Much of the surrounding study area is currently inaccessible by vehicle.

In the northern areas of the park near Rumbling Bald, visitors take Boys Camp Road to the climbing day use area. Boys Camp Road is not a through-road and terminates about one half-mile past the climbing day use area, limiting further access. There are two other roadways in the northern study area on the outskirts of the park: Shumont Road and Buffalo Creek Road. Shumont Road is a winding mountain road accessible from N.C. Highway 9. This roadway also ends and splits into two dirt roads, where several privately-owned properties continue before entering the park boundary. Where the paved roadway ends, no public access is currently permitted. Buffalo Creek Road is only accessible by driving around Lake Lure. Following U.S. Route 64/74A east, Buffalo Shoals Road becomes Buffalo Creek Road. Smaller private roadways exist off Buffalo Creek Road leading into residential areas and neighborhoods.



FIGURE 1.5: STUDY AREA CIRCULATION





REGIONAL PLANNING AND LAND USE

The study area for Chimney Rock State Park lies within four counties: Rutherford, Henderson, Polk, and Buncombe (see Figure 1.3, page 1-3 for the study area). Each of these counties have separate comprehensive plans, zoning classifications and land use categories.

RUTHERFORD COUNTY

In Rutherford County, two populated areas within the study area are the Chimney Rock Village and the Town of Lake Lure. Both of these areas are classified by the county as developed or limited transition. Limited transition is defined as providing for limited development, primarily residential. The remaining lands are classified as either rural or are unclassified. The study area in Rutherford County was not zoned at the time this document was prepared.

Several comprehensive land use plans have been developed in the counties that comprise the study area. Based on the *Rutherford County Land Use Plan*, it is envisioned that Rutherford County will focus more on recreation by assisting local municipalities to complement existing park facilities and to meet future needs.

The Rutherford County Comprehensive Arts, Parks and Recreation Plan is based upon a review of the entire county, an analysis of existing arts, parks and recreation facilities, citizens surveys, identification of needs and limitations, visions for all aspects of arts, parks and recreation, and recommendations to fulfill these visions. This plan is designed to be implemented over a number of years, and should be serviceable through the year 2015.

The Lake Lure Comprehensive Plan refers to Lake Lure as the “focal point of the community, (the town center).” The plan makes references to the existing buildings, and to the feasibility of infill development that would include a mixture of complementary uses, particularly recreation-oriented retail. Other opportunities for reuse are suggested, such as the hotel and arcade building by providing a context for the creation of a compact, vibrant center of activity.

BUNCOMBE COUNTY

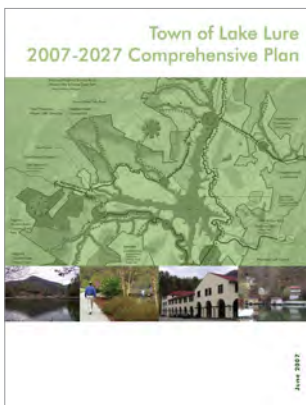
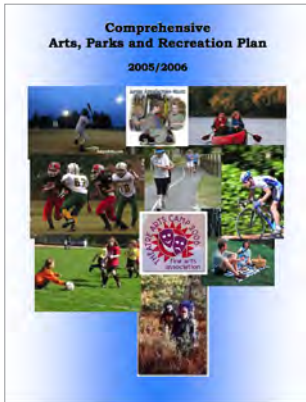
Study areas within Buncombe County did not have associated land use classifications at the time this document was prepared. The study area in Buncombe County has a zoning classification of “open use.”

POLK COUNTY

Polk County study areas did not have associated land use classifications at the time this document was prepared. The study area within the county is not zoned. In 2009, Polk County passed the *Mountainside and Ridgeline Protection Ordinance* for unzoned areas at elevations of 1,650 feet or greater. This ordinance controls development in the western portion of the county by protecting the natural conditions and respecting existing topography, and securing the public health, safety, and general welfare within these areas.

HENDERSON COUNTY

Henderson County has a comprehensive land use classification system. Lands within the study area are broadly classified as residential, vacant, agricultural, and commercial with each of these categories broken out further. For zoning purposes, the majority of the study area in Henderson County is zoned as R3 (intended for low density residential) and Open Use (a district in which almost all uses are allowed, but some are regulated so as to ensure that neighborhood impact is mitigated).





2 EXISTING INFRASTRUCTURE

BUILDINGS AND STRUCTURES INVENTORY

The following provides a general description of the infrastructure, services, utilities and roadway network within Chimney Rock State Park. Figures 2.1 and 2.2 show inventoried existing park facilities.

Information contained in this inventory was developed from an on-site assessment of park facilities in May 2009. The assessment included a limited visual inspection of buildings and structures within the park. Additional resources utilized for this inventory include, but are not limited to, the N.C. Department of Administration “Assessment of Chimney Rock Park Facilities” (from the Facilities Conditions Assessment Program) dated March 26, 2007; and the Phase I Environmental Site Assessment of the Chimney Rock Park, prepared for the N.C. Department of Administration dated Feb. 26, 2007.



OLD ROCK CAFÉ (ca. 1970s, 2,346 SF)

Located along U.S. Route 64/74A to the west of the main park entry. Two story structure with block masonry construction. Painted vertical siding on sides and rear of the building and stone veneer along the front. Asphalt shingle roofing. Sloped canopy along the front sidewalk with painted plywood ceiling and fascia. Timber deck with canvas canopy provides outside dining overlooking the Rocky Broad River.



PARK ENTRANCE (ca. 1920s)

Two stone masonry towers flanking the bridge access across the Rocky Broad River. The west tower was utilized at one time as a ticket sales office and includes a second floor area. There is a restroom adjacent to the main entry to the east. The building is timber frame construction with stained wood siding and shingle roofing.



ENTRY BRIDGE (est. dates vary)

Spans the Rocky Broad River at park entrance. 218 feet long and 21 feet, three inches wide. Timber decking system with a two-inch plank wearing surface and 3¾-inch timber deck supported on steel beams with concrete substructure. Timber railing completes the bridge superstructure. Bridge improvements were made in early 2011.

FIGURE 2.1: CHIMNEY ROCK EXISTING PARK FACILITIES

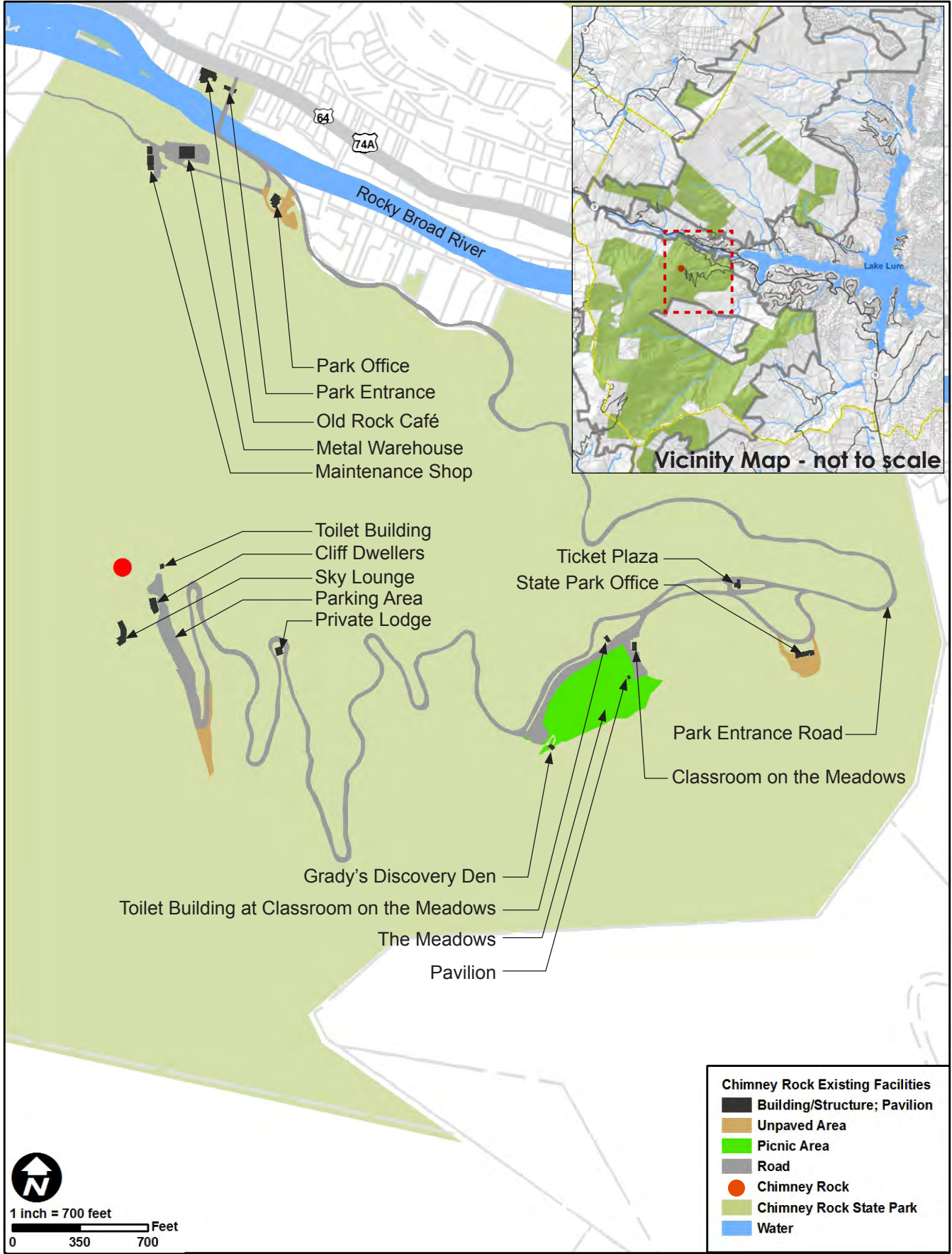


FIGURE 2.2: RUMBLING BALD EXISTING PARK FACILITIES





METAL WAREHOUSE (ca. 2005, 3,618 SF)

Pole barn structure consisting of heavy timber roof trusses supported on laminated timber posts that are embedded in the ground. Corrugated metal roofing and siding at exterior envelope. Concrete slab on grade. There is a truck-height covered dock at one end of the building with roll-up dock door.



MAINTENANCE SHOP (est. dates vary, 2,450 SF)

Includes office building with attached sheds to the south. Office is a masonry block structure with a hipped roof and two service bays with a small office area on crawl space at the north end of the building. Both shed additions include metal roofing. Center-shed portion is timber frame hipped construction. Southern shed addition is a mono-sloped timber frame structure with metal roofing.



PARK OFFICE (ca.1920s, 1,773 SF)

Converted house located just south of the Rocky Broad River along the entry drive. Timber frame construction with a brick veneer foundation on concrete footings. Exterior is painted cedar lap siding. Asphalt shingle roofing.



STATE PARK OFFICE AND ATTACHED MAINTENANCE SHED (ca. 2003, 2,612 SF)

The maintenance shop with attached shed contains 2,612 SF of space. Timber frame construction with painted cedar siding on block masonry foundation. Office area has a concrete slab on grade and the shed area is gravel. The office portion of the building contains a mezzanine.



TICKET PLAZA (ca. 1996, 529 SF)

Contains 529 SF of heated area with an attached canopy area of 457 SF. Includes small ticket office with visitor lobby, two ticket windows within building, and restroom for staff. The canopy area includes two drive lanes with separate enclosed ticket booth between lanes.



CLASSROOM ON THE MEADOWS (ca. 1992, 1,180 SF)

Includes a display room with storage areas. There has been an addition at the rear (east) side of the building that is supported on masonry block foundation. Asphalt shingle roofing.



TOILET BUILDING AT CLASSROOM ON THE MEADOWS (ca. 1981, 491 SF)

Block masonry construction with timber frame roof structure and asphalt shingle roofing. Exterior is stone veneer with painted cedar siding at the gable ends and painted plywood soffits at overhangs. Interior finish is a mural painted on stucco and drywall painted ceiling.



PAVILION (ca. 1982, 1,800 SF)

Open sided structure located south of the Classroom on the Meadows. Glu-lam structural frame with timber decking and support post. The floor is slab on grade with asphalt shingle roofing and aluminum gutters along the sides.



GRADY'S DISCOVERY DEN (ca. 1998, 366 SF)

Modular structure with an additional 384 SF of elevated decking along the east and north sides of the building. Supported on masonry block foundation and includes tie-down straps for horizontal wind load resistance. The building exterior is clad with stained split log siding and the interior is also sealed wood. Standing seam metal roofing.



PRIVATE LODGE (ca. 1916, 1,833 SF)

Timber frame construction on crawl space with masonry foundation. Building exterior consists of painted wood lapboard siding and roofing is asphalt shingles. Windows are insulated glass in aluminum frames and the main entry is a sliding glass door. Electric service is located in a shed attachment on the east side of the building.



WELL HOUSE (ca. 1980, 300 SF)

Block masonry construction with timber truss roof structure and asphalt shingle roofing. The exterior is un-painted masonry with plywood sheathing at the gable ends of the building. Entry is via a hollow metal door and the floor is slab on grade.



RETAINING WALL AT CLIFF DWELLERS PARKING LOT (est. dates vary)

Extends along the length of the parking lot at Cliff Dwellers. Mortared stone, varies in height along the reach of the wall. Wall is capped with a sidewalk, and chain link fencing extends most of the way to Cliff Dwellers.



CLIFF DWELLERS GIFT SHOP (ca. 2003, 2,652 SF)

Building is two stories in height with asphalt shingle roofing and painted cement board siding. Front of the building has storefront glass windows with insulated plates and anodized aluminum frames.



TOILET BUILDING AT CLIFF DWELLERS (ca. 2003, 429 SF)

Block masonry construction with timber frame roof structure and asphalt shingle roofing. Exterior is stone veneer with painted cedar siding at the gable ends and painted plywood soffits at overhangs.



TUNNEL, ELEVATOR AND SHAFT (ca. 1940's, 2,200 SF)

The tunnel and elevator shaft are cut from solid rock with the tunnel extending 258 feet horizontally to a vertical shaft housing the elevator. The tunnel extends from the Cliff Dwellers parking lot into the mountain side to the base of the elevator shaft. Elevator car provides access from the public parking area to the Sky Lounge, a vertical movement of 198 feet. The elevator shaft includes a metal stairway for emergency access. Improvements scheduled to begin in 2011.



SKY LOUNGE (ca. 1987, 3,794 SF)

Situated 26 stories above Cliff Dwellers. Access is either via elevator or trail network. Construction is heavy timber frame and natural lighting has been provided to the building via second story windows along the rear wall. Siding is painted wood. Asphalt shingle roofing. The front of the building overhangs the mortared stone foundation with a floor structure of concrete slab. Improvements scheduled to begin in 2011.



PARK BOARDWALKS AND STAIR STRUCTURES

(est. dates vary)

There are numerous treated timber boardwalks and stair structures constructed of wood and metal throughout the park.

EXISTING TRAILS INVENTORY

Public trails at Chimney Rock State Park are located primarily near Chimney Rock. Trail surfacing varies from natural tread to granite fines and boardwalk. Many trails are looped and incorporate educational signage elements. Trail widths range from 18 inches to 12 feet. Figure 2.3 shows existing trails at Chimney Rock State Park. Existing trails at Chimney Rock State Park include:



GREAT WOODLAND ADVENTURE TRAIL

(0.6 mile loop, from Grady's Discovery Den)

Trail is three to four feet wide, surfacing materials include bare earth, granite fines, treated timber boardwalk, and treated timber bridges. Educational signage, art and sculpture are located strategically along the trail. Trail entrance is located behind Grady's Discovery Den. Approximately 20 to 30-minute non-strenuous hike.



FOUR SEASONS TRAIL (0.6 mile, from the Meadows to Hickory Nut Falls Trail)

Natural tread with timber and rock steps, treated timber boardwalk and stair structures. Trail is three to four feet wide. Approximately 30 to 45-minute strenuous hike with 400-foot gain in elevation.



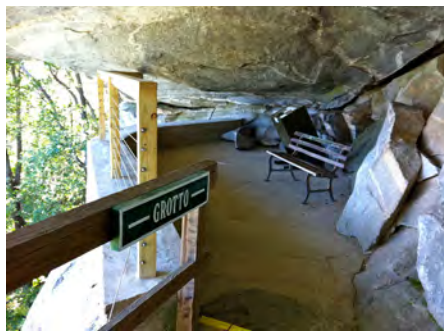
HICKORY NUT FALLS TRAIL (0.75 mile from the Park Entrance Road to base of Hickory Nut Falls)

Trail varies in width from 10 to 12 feet with several uphill sections. Surfacing ranges from granite fines to natural tread and exposed rock. Treated timber boardwalk features, a stair structure and timber retaining walls are in several locations. Approximately 30-minute moderate hike.



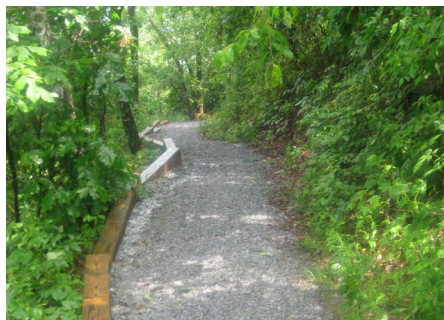
OUTCROPPINGS TRAIL (0.25 miles, from the Cliff Dwellers Parking Lot to top of Chimney Rock)

Stair structures and treated timber boardwalk. Trail width varies from four to eight feet. Viewing platforms are treated timber. The Outcroppings trail provides access to Vista Rock, the Grotto, the Subway, Pulpit Rock, and Moonshiner's Cave. Approximately 20 to 30-minute strenuous hike.



PULPIT ROCK, SUBWAY AND GROTTO TRAIL (0.10 mile loop from Outcroppings Trail)

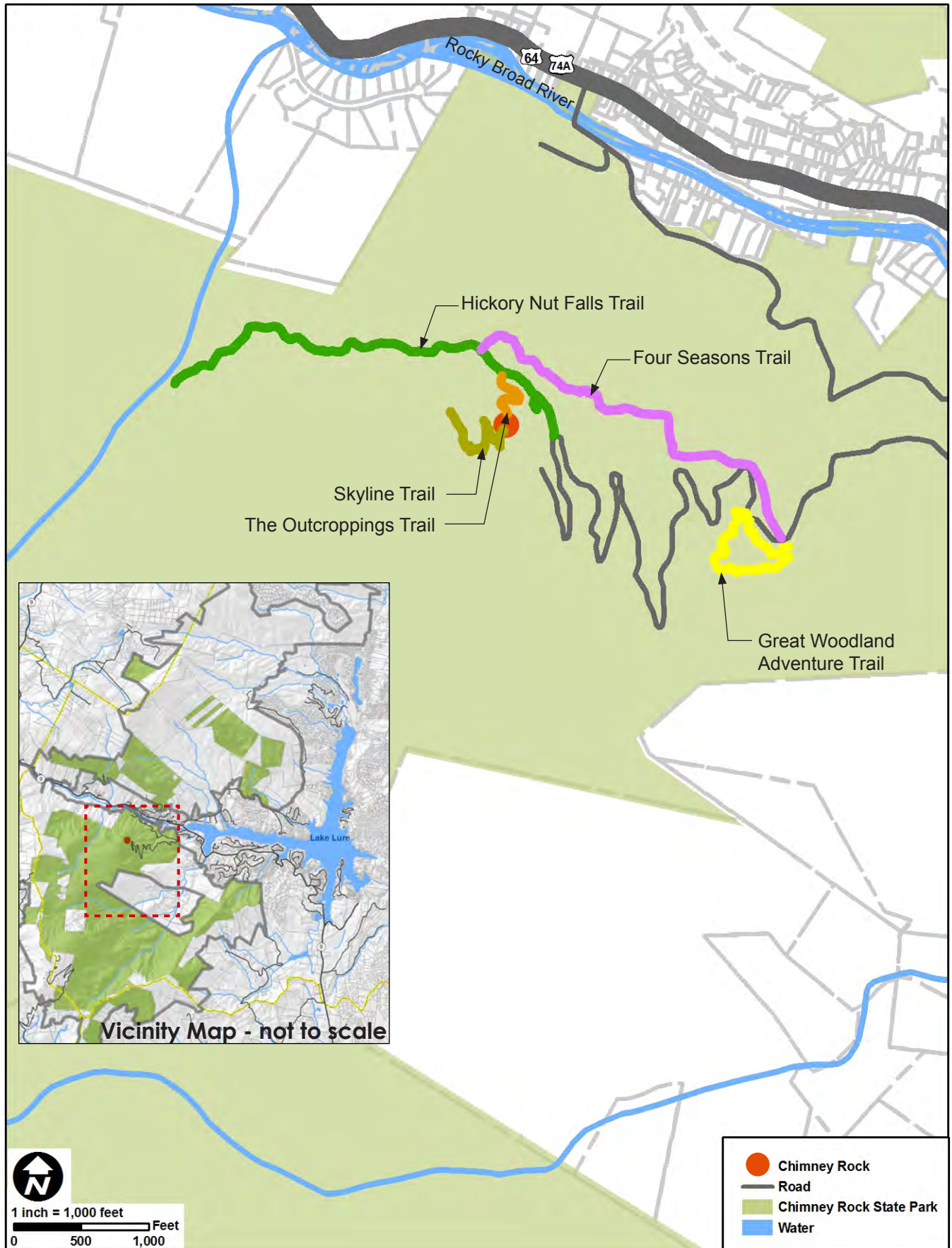
Native rock, timber boardwalk. Trail is a loop off of the Outcroppings Trail, links together Pulpit Rock, Subway and Grotto. The trail has been closed during the timeframe of this master plan due to substandard tread conditions.



SKYLINE TRAIL (0.35 mile from top of Chimney Rock to Exclamation Point)

Masonry, timber edging, timber boardwalk, natural tread, and gravel surfacing. Trail connects to the Opera Box, Devil's Head, and Exclamation Point. Approximately 20 to 30-minute moderate to strenuous hike.

FIGURE 2.3: STUDY AREA EXISTING TRAILS





ROADS AND UTILITIES INVENTORY

EXISTING ROADS

The park is served by a single, paved, three-mile-long entrance road off of U.S. Route 64/74A with a bridge across the Rocky Broad River. Traffic on the entrance road is two-way with the exception of a short section at the ticket office. Roadway width varies from 16 to 20 feet with varying shoulder width. The roadway ascends from the entrance to Cliff Dwellers on moderate to steep grades, utilizing a number of switchbacks.



Park entrance road



Pedestrian crosswalk along entrance road



Overflow parking at The Meadows



Parking at Cliff Dwellers

EXISTING PARKING AREAS

Main public parking areas are located at Cliff Dwellers and the Meadows. A large gravel area at the Meadows can support up to 200 cars. Parking at Cliff Dwellers includes a paved parking area with 168 marked standard automobile spaces and four ADA accessible spaces. An additional gravel and grass parking area adjacent to the paved area serves as overflow and bus/RV parking.

Parking at the ticket plaza is accommodated by a small paved area with three marked standard spaces, one ADA accessible space, and RV parking adjacent to the entrance road. Parking for other facilities is provided by small gravel or grassed areas adjacent to these facilities.



Public parking at the Rumbling Bald

RUMBLING BALD CLIMBING ACCESS EXISTING PARKING AREAS

Public parking for the Rumbling Bald Climbing Access area is located off Boys Camp Road in the northeastern portion of the study area. A paved roadway extends from Boys Camp Road to a gravel parking area that can support up to 33 vehicles. The parking area is gated and is open daily from 8:00 a.m. until sunset.

EXISTING SANITARY SEWER SYSTEMS

The Town of Lake Lure provides sanitary service to the Old Rock Café. All other sanitary service for the park facilities is provided by septic/drain field systems.

Sanitary service for Cliff Dwellers, the toilet building at Cliff Dwellers, and the Sky Lounge is provided by a single system consisting of two 1,500-gallon underground septic tanks beneath the paved parking area and a drain field of unknown dimensions located beneath the current gravel portion of the parking area. Sanitary waste from Cliff Dwellers gravity-flows to the septic tanks by underground PVC pipe. Sanitary waste from the Sky Lounge gravity flows to the septic tanks in an above-ground PVC pipe. Sanitary waste from the toilet building at Cliff Dwellers is temporarily stored in a holding tank behind the toilet building and pumped by way of a grinder pump to the septic tanks detailed above.

Sanitary service for the toilet building at Classroom on the Meadows, Ticket Plaza, State Park Office, Park Office, and the Metal Warehouse and Maintenance Shop are provided by three different septic tank/drain field systems adjacent to these facilities.

EXISTING WATER SYSTEMS

Historically, the park provided water to the Town of Lake Lure and the Chimney Rock Village as well as the park facilities from surface springs. Supply was provided by way of surface piping which is still quite evident throughout the park property. The use of surface springs and service to communities outside the park was discontinued within the last two decades. Water supply for the park is currently provided by a number of wells located throughout the park property primarily along the entrance road.

The Park Office is served by a well of unknown depth and capacity located adjacent to the building (dug in the early 1980s).

The Metal Warehouse and Maintenance Shop are served by a well of unknown specifications located between the old gatehouse and the Rocky Broad River. Service from this well is provided to the warehouse and maintenance buildings by a ¾-inch polyethylene pipe run under the bridge deck across the river.

The Old Rock Café is served by Chimney Rock Village water service. This is the only facility within the park that is not served by a well.



Overhead electrical and telecommunications service

The State Park Office is served by a well of unknown specifications located within the adjacent utility shed.

The Grady's Discovery Den is served by a six inch, 1,200-foot-deep well with a capacity of six gallons per minute (gpm). This well is also connected to the water system for the upper park area described below but does not contribute to the water supply for this system.

The remainder of the park facilities (Sky Lounge, Cliff Dwellers, toilet building at Cliff Dwellers, toilet building at Classroom on the Meadows, Private Lodge, Classroom on the Meadows, and ticket plaza) are served by a well/reservoir system connected to a network of above-ground piping. The primary well is located adjacent to the entrance drive between Grady's Discovery Den and the Private Lodge. The well is six inches in diameter, 200 feet deep, dug in 2006 with a capacity of 35 gpm. The well pump is controlled by a float switch located in the nearby 7,500-gallon pump house reservoir. This reservoir provides water by gravity head pressure to the Meadows including Classroom on the Meadows, the toilet building at Classroom on the Meadows, and the Ticket Plaza. Chemical disinfectant is added to the pump house reservoir daily. The system is tested periodically for bacteriological contamination and nitrates.

EXISTING ELECTRICAL SYSTEMS

Duke Power provides electrical service for the park facilities. Service to the Old Rock Café, Park Office, Metal Warehouse and Maintenance Shop are provided by a service line originating in Chimney Rock Village.

Electrical service for all other park facilities is provided by an aerial three-phase service line. This above-ground service terminates at Cliff Dwellers. Service to individual facilities is provided by either above or below-ground services. Service to the Sky Lounge, elevator and lighting areas around the primary attraction is provided by way of a three-phase line, which travels up the elevator shaft.

EXISTING TELECOMMUNICATIONS SYSTEMS

Telecommunication service for park facilities is provided on the same above-ground utility lines that provide electrical service.

EXISTING STORMWATER DRAINAGE SYSTEMS

Stormwater drainage systems throughout the park generally focus on stormwater disposal and conveyance. There are no stormwater treatment or storage facilities within the park. Conveyance of stormwater under roadways and parking lots consists of a combination of precast concrete culverts and corrugated metal piping.



3 NATURAL RESOURCES

INTRODUCTION

Chimney Rock State Park is located on the eastern edge of the Blue Ridge Mountains in the southern Appalachian Mountain range. These mountains are some of the oldest on earth, escaping glaciation during the last ice age and harboring animal and plant life for millions of years – longer than any other region in the United States. The Hickory Nut Gorge region features a subtropical climate and is the second wettest in the United States. The topography is diverse with elevations ranging from the hundreds of feet to 6,684 feet at Mount Mitchell, the highest point in the eastern United States. Due to these topographic and climatic factors, the southern Appalachians host a number of different natural communities and boast some of the greatest biodiversity in the world.

Chimney Rock State Park is one example of the diversity of the southern Appalachians. The park is a tremendous natural resource, containing high quality, intact, and unique natural communities, rare species of plants and animals, rock outcrops, steep slopes, balds, and waterfalls.

Figure 3.1 shows aerial photography of Chimney Rock State Park and the surrounding study area. This image is comprised of orthophotography data from Polk (2003), Henderson (2007), Rutherford (2005), and Buncombe (2006) counties and provides a glimpse of existing development and the terrain of the park and surrounding study area.

TOPOGRAPHY AND ELEVATION

TOPOGRAPHY

Figure 3.2 features 20-foot topographic contours for Chimney Rock State Park and the surrounding study area. The map is comprised of 2007 Light Detection and Ranging (LIDAR) data provided by the North Carolina Department of Transportation for Henderson, Rutherford, Buncombe, and Polk counties. The contours show the dramatic landscape, ranging from steep mountains to deep river valleys in the park and surrounding region. The steep protruding cliffs of Chimney Rock, Rumbling Bald and other mountains are indicated by the tight, almost overlapping contour lines.

ELEVATION

Figure 3.3 illustrates the elevation ranges within the park boundaries and surrounding study area. The elevation within the study area ranges from approximately 989 feet near Lake Lure to 3,966 feet atop Sugarloaf Mountain. The second highest point in the study area is Shumont Mountain at 3,842 feet. These substantial changes in elevation represent design challenges for buildings, trails, and other facilities. The data for this map is from the 2007 LIDAR data.

FIGURE 3.1: STUDY AREA AERIAL IMAGERY

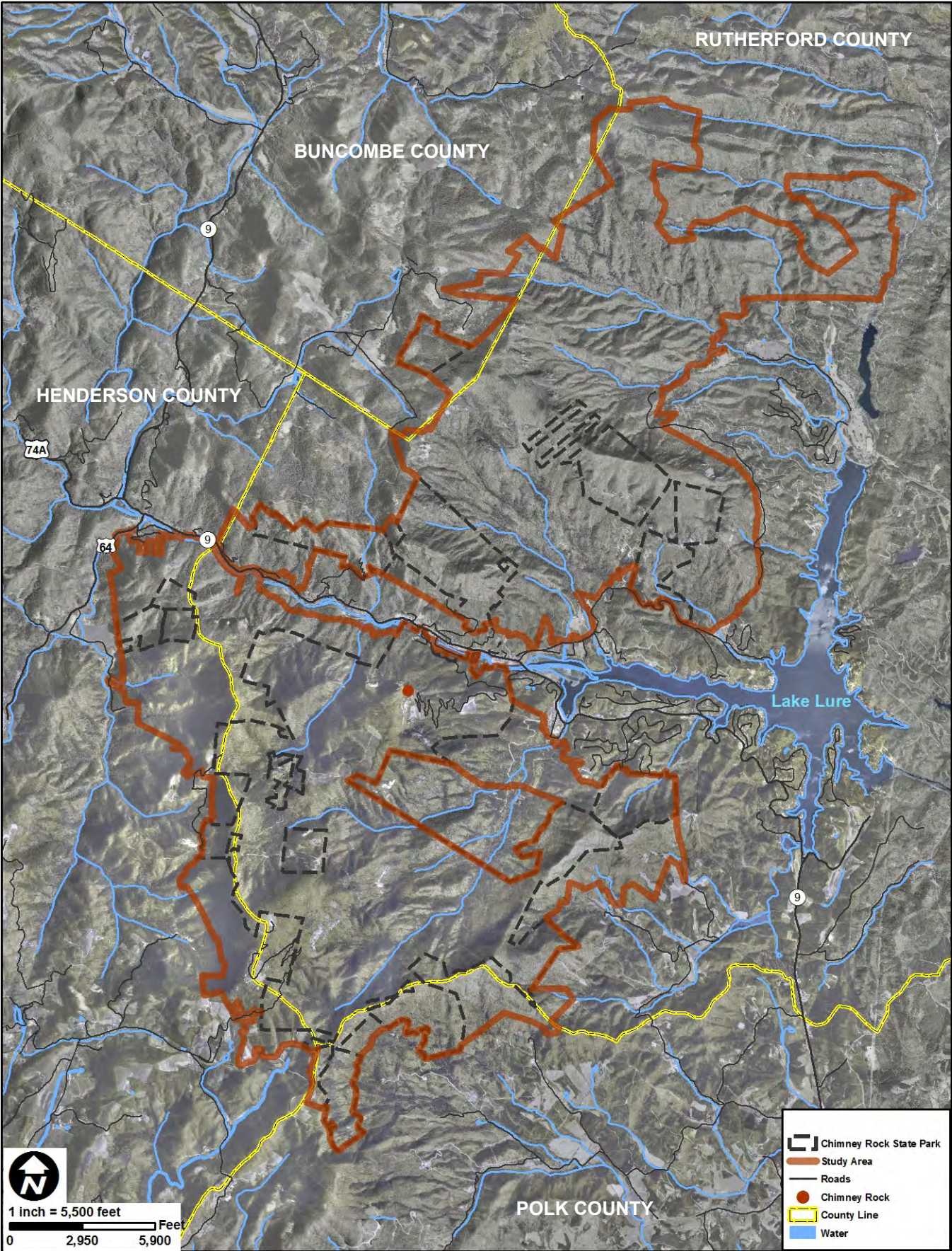


FIGURE 3.2: STUDY AREA TOPOGRAPHY

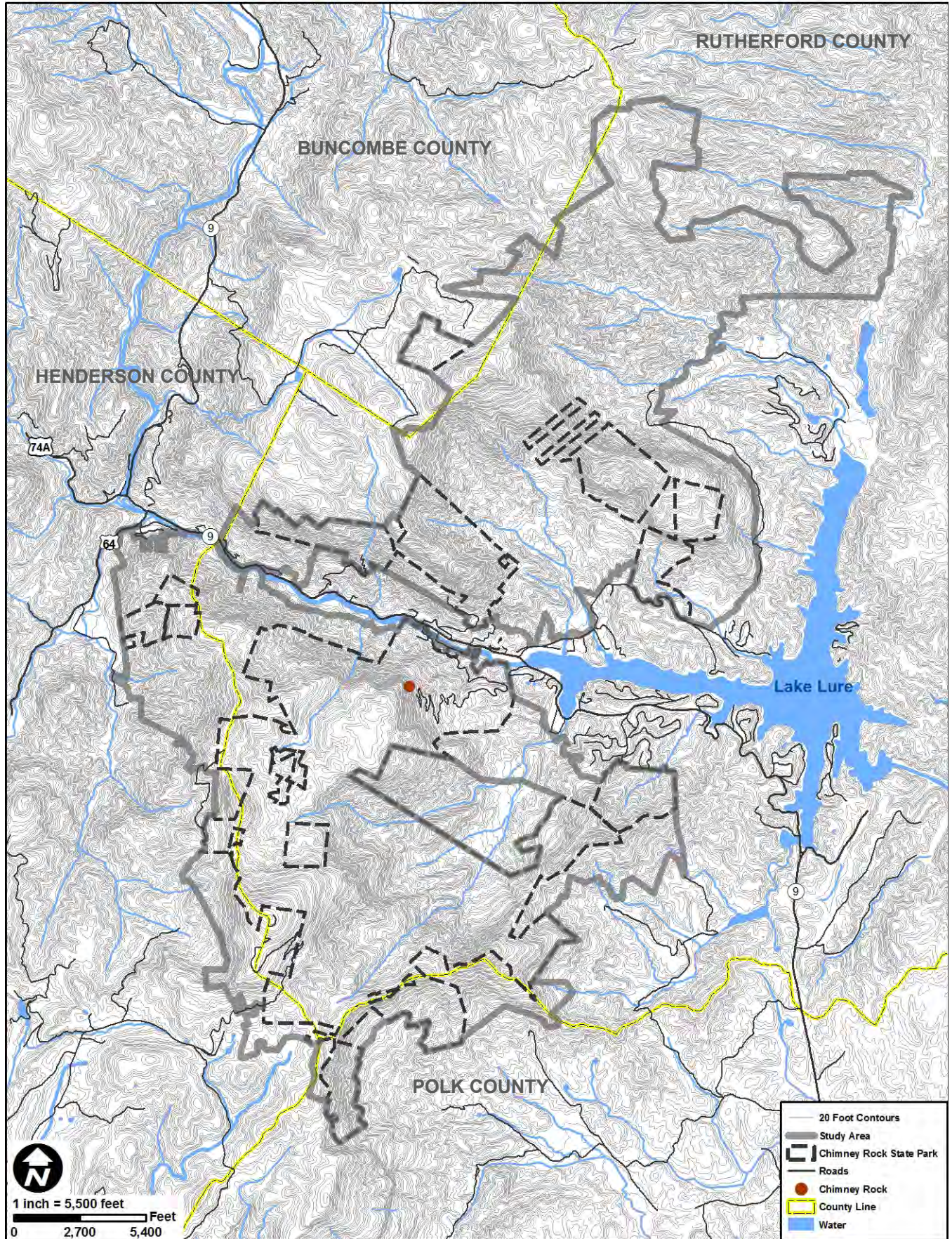
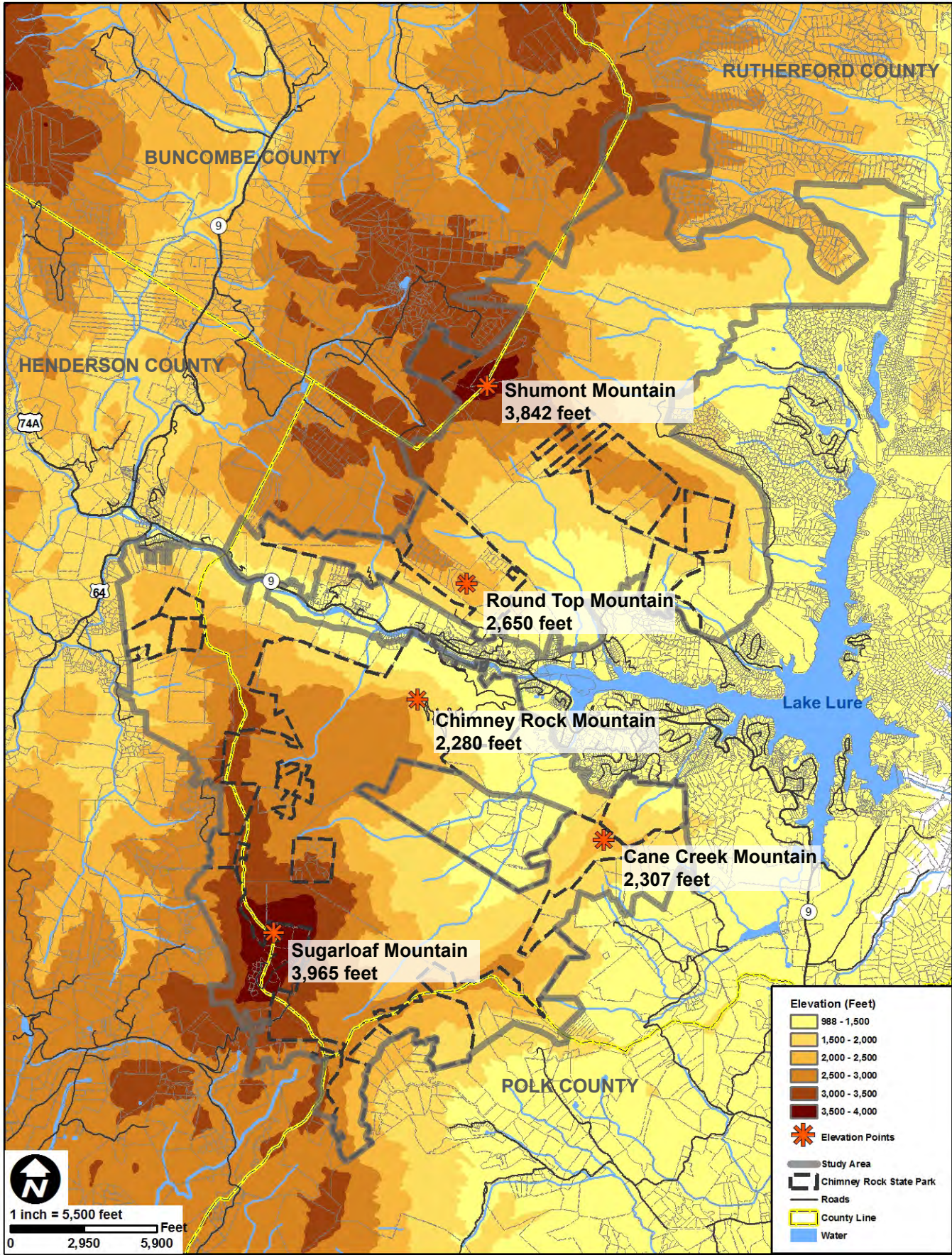


FIGURE 3.3: STUDY AREA ELEVATION





SLOPE AND ASPECT

SLOPE

Figure 3.4 displays slopes in percentages utilizing 2007 LIDAR data. This data is not survey quality; therefore, detailed topographic surveys should be conducted during the design development phase for any proposed construction project within park boundaries.

Steep cliffs, overhanging rocks, and tall waterfalls have helped define the Hickory Nut Gorge region. These topographic features dominate the landscape in and around the park.

The two shades of green on the map identify slopes less than 18 percent where development may potentially occur. As indicated by the map, there are very limited areas where this condition can be met. The majority of steep slopes (20 percent or greater) comprise 87 percent of the park and surrounding study area. The maximum conditions for slope with various development-related activities are as follows:

0-10%	Easily buildable and pedestrian accessible; ideal for roads and trails.
11-18%	Maximum buildable slopes for roads
19-30%	Maximum buildable slopes; septic capable
31-65%	Steepest provisionally for on-site sewer
>65%	Unbuildable

ASPECT

Figure 3.5 illustrates aspect in the park and study area. Aspect is the direction that land faces from north (0°) going clockwise towards east (90°) and so forth back to north (360°), and in turn has an effect on micro communities. Generally, south-facing slopes receive more sunlight, have drier soils and have higher temperature microclimates. North-facing slopes receive more shade and are typically more moist. Species that thrive in moist conditions, such as ferns and rhododendron are typically found on north-facing slopes. Typically, west-facing slopes have higher temperatures than east-facing slopes due to the direct afternoon sun exposure. South-facing slopes are ideal when planning buildings and public use areas utilizing energy-efficient techniques and solar energy harvesting. The map represents south-facing aspects in yellow and pink and north-facing aspects in blue. As indicated by the map, most of the existing facilities at Chimney Rock State Park are located on north-facing slopes.



View into the Hickory Nut Gorge valley from the Opera Box

FIGURE 3.4: STUDY AREA SLOPE

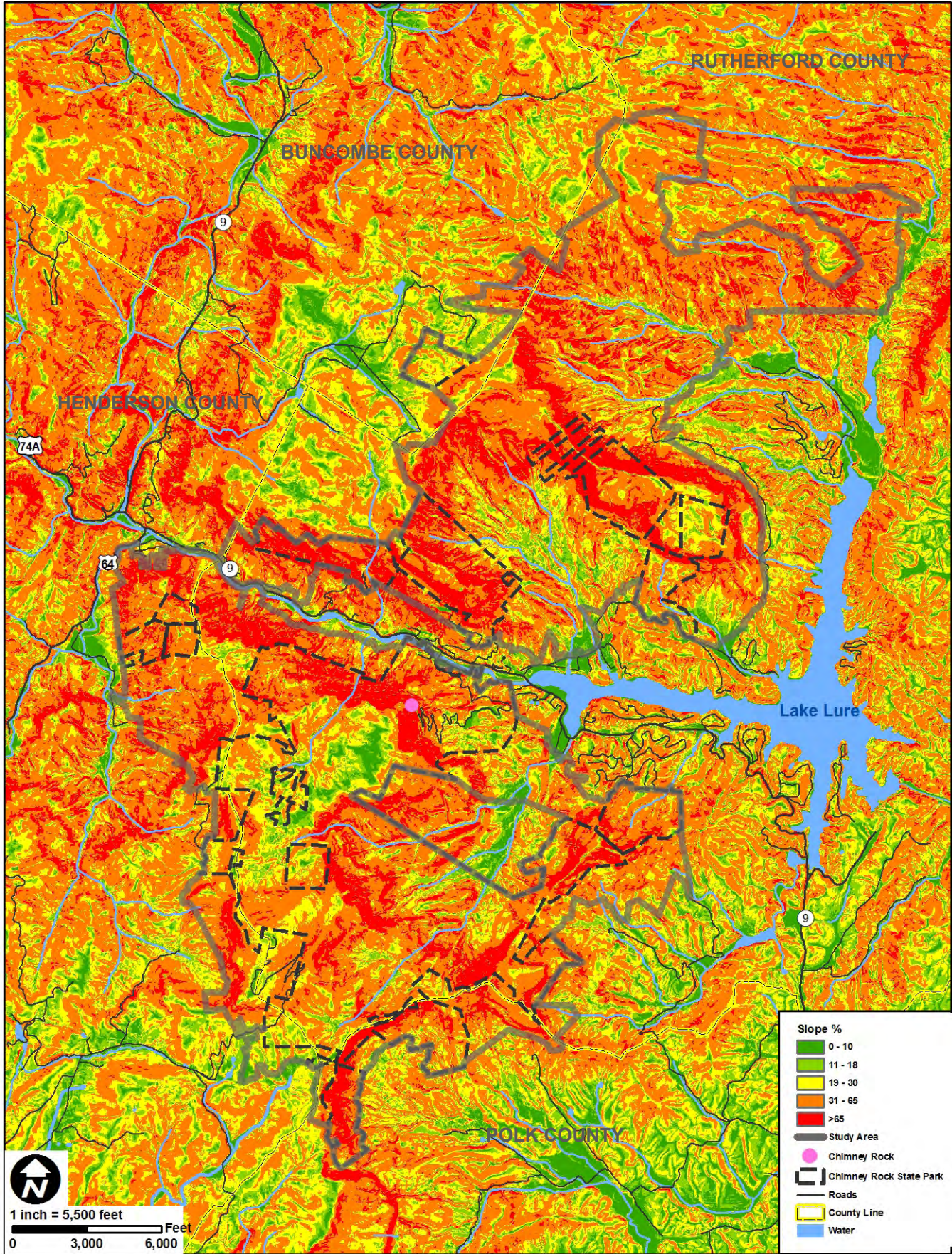
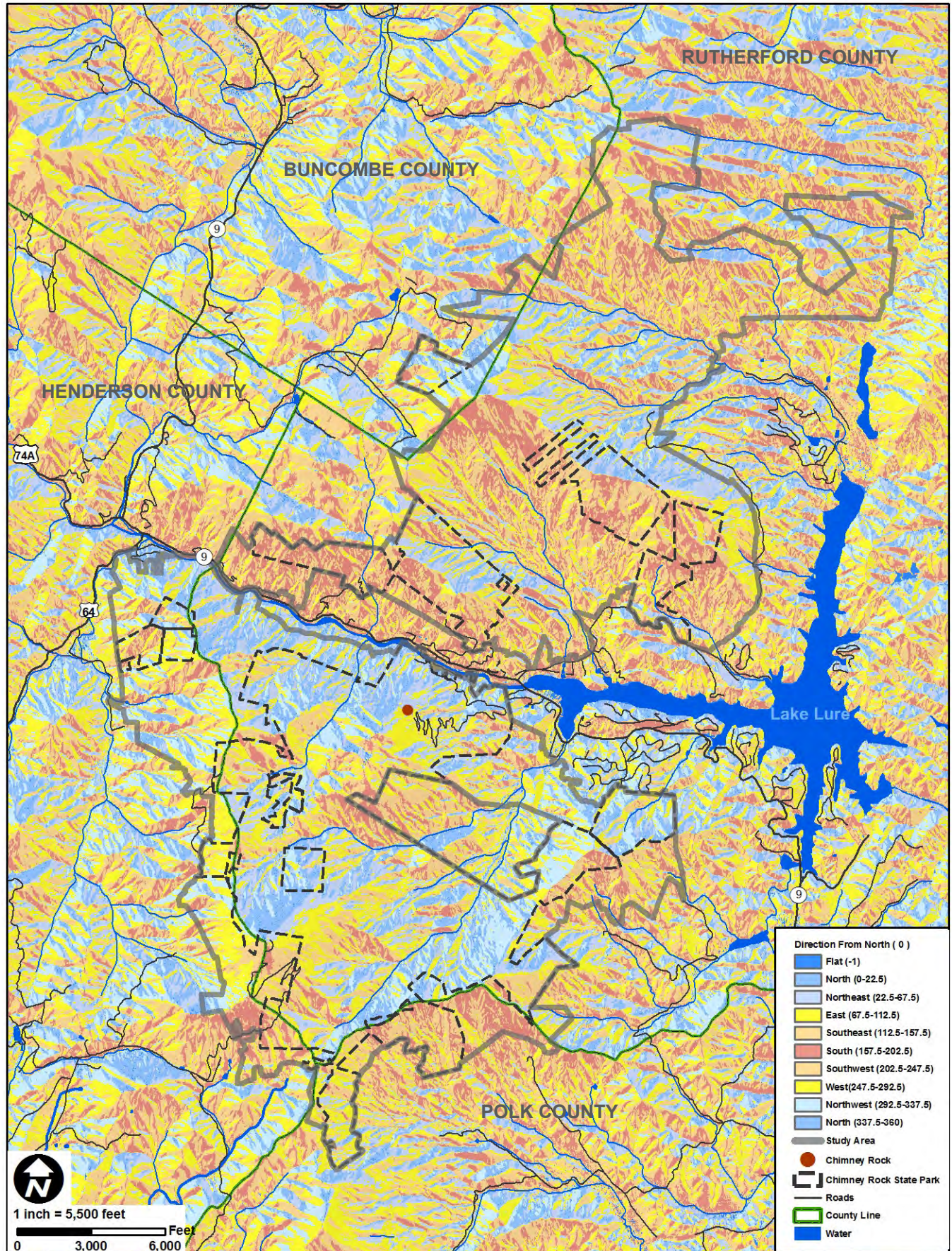


FIGURE 3.5: STUDY AREA ASPECT





CLIMATE

The southern Appalachian Mountains feature a subtropical wet climate, with some of the highest annual precipitation averages in the country outside the Pacific Northwest. Topography contributes to distinct microclimates on peaks and in valleys and coves. Precipitation, winds, and temperature are highly variable in the mountainous terrain of the study area, with elevation ranging from near 1,000 feet to 4,000 feet and slope and aspect playing major roles in determining temperature and moisture levels. Typically, temperature drops with increases in elevation. The lapse rate for a standard atmosphere is about 3.5° F per 1,000 feet, meaning that the range of temperatures in the study area is likely more than 10 degrees F. Due to many factors, the lapse rate will vary day to day and even throughout the day based on clouds, rainfall, and other factors.

Detailed 1971-2000 climatic norms data comes from the State Climate Office of North Carolina. Data availability varies by station. The information below is provided by the North Carolina Climate Office. Three sources of data are provided due to lack of available data from the Lake Lure station. At Lake Lure, the average monthly precipitation ranges from 4.03 inches in December to 5.96 inches in August. The average annual rainfall is 57.6 inches. At Tryon, NC (15 miles from the study area), the average maximum temperature ranges from 51.9 degrees F in January to 89.1 degrees F in July. Average minimum temperatures range from 30.3 degrees F in January to 66.8 degrees F in July. In Asheville (24 miles from the study area), the average annual snowfall is 15 inches.

The park is located in the vicinity of latitude 35.421 degrees north and longitude -82.188 degrees west. This latitude reflects a solar azimuth angle (angle of sun relative to the horizon) of 33 degrees on the winter solstice and approximately 79 degrees on the summer solstice. This information is useful for siting buildings and other structures for energy efficiency and solar comfort, both important in designing for sustainability.

HYDROLOGY

The State of North Carolina contains all or portions of 17 river basins as seen within Figure 3.6. Chimney Rock State Park and the study area fall within the Broad River basin, and more specifically within the Upper Broad River Sub-basin (Figure 3.7). The study area also contains a number of named streams and rivers as seen in Figure 3.8.

The Rocky Broad River is the largest river within the park study area and originates in the western mountains of North Carolina. It flows southeast through the Foothills and Piedmont before entering South Carolina. The Rocky Broad River has four major tributaries, which include the Green, First Broad, Second Broad and North Pacolet rivers. The study area also includes a number of small reservoirs.

Figure 3.8 illustrates the various hydrological features within the Chimney Rock State Park study area, including Lake Lure and the Rocky Broad River and its tributaries. Streams to the south of Sugarloaf Mountain flow into the Green River and the Hungry River. Within this area, there are 165 N.C. Division of Water Quality (NCDWQ)-classified stream segments. Of these classifications, the two main classifications found are “B” and “C.” These main classifications are combined with “Tr,” a supplemental classification.

The highest quality classifications for streams and rivers are High Quality Waters and Outstanding Resource Waters. None of the rivers or streams within Chimney Rock State Park or the surrounding study area have either classification. The specific classifications found within the study area are “B-Tr,” “C,” and “C-Tr.”

- **Class B** (17 segments classified as “B-Tr”)

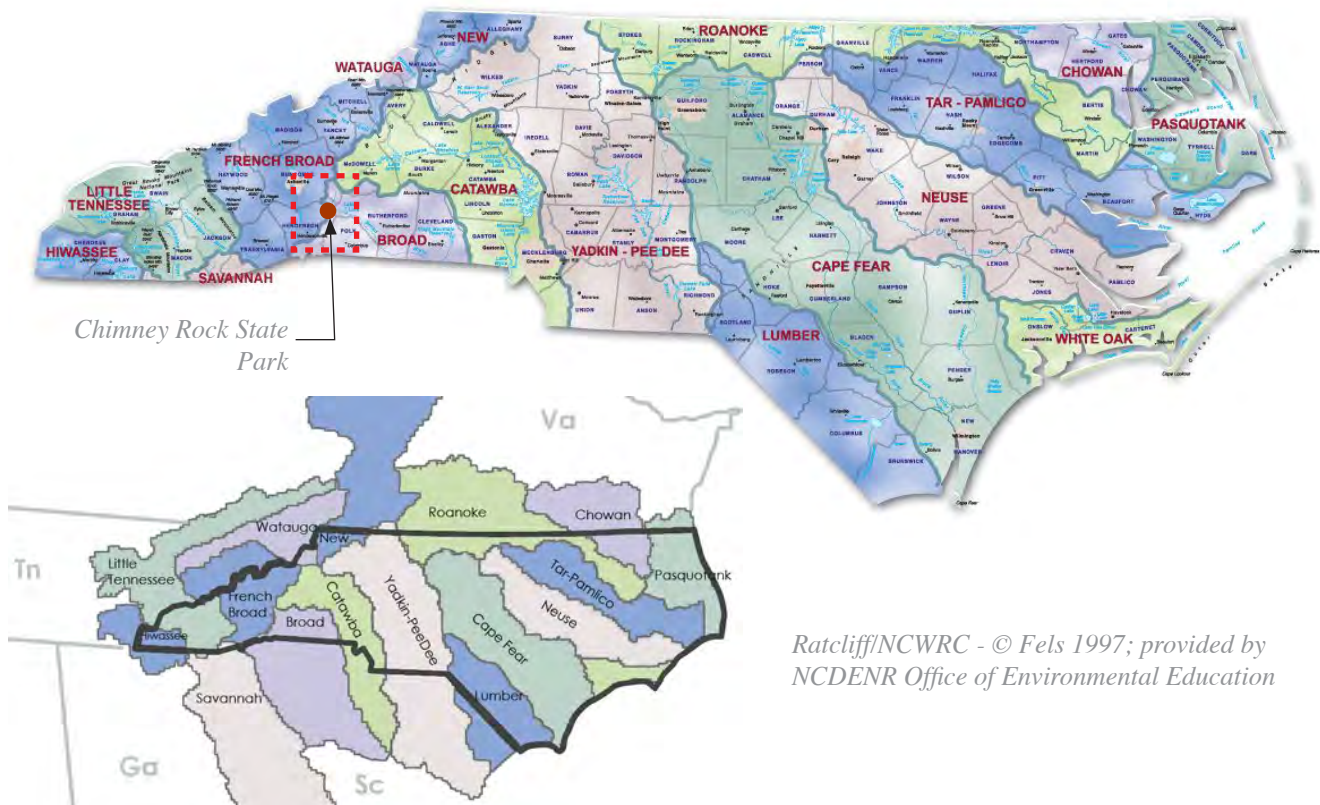
Waters protected for all Class C uses in addition to primary recreation. Primary recreational activities include swimming, skin diving, water skiing, and similar uses involving human body contact with water where such activities take place in an organized manner or on a frequent basis.

- **Class C** (11 segments classified as “C” and 137 segments classified as “C-Tr”)

Waters protected for uses such as secondary recreation, fishing, wildlife, fish consumption, aquatic life



FIGURE 3.6: NORTH CAROLINA RIVER BASINS



including propagation, survival and maintenance of biological integrity, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner.

• Trout Waters (Tr)

Supplemental classification intended to protect freshwaters that have conditions that sustain and allow for trout propagation and survival of stocked trout on a year-round basis.

Floodplain and wetlands within Chimney Rock State Park and the surrounding study area are scarce due to the mountainous topography of the area. Floodplain can be seen along a few of the stream and river basins such as Cane Creek and the Rocky Broad River in Figure 3.8 (data provided by the N.C. Division of Emergency Management 2007). Wetlands are only found around Lake Lure, and do not appear on Figure 3.8 due to the scale of the data (data provided by the U.S. Fish and Wildlife Service 2007).

Protection of water quality is an important aspect of the park's role in conservation. Those waters classified as Tr (the majority of waters in the study area) require maintenance of a 25-foot vegetative buffer on both sides based on State of North Carolina regulation. Additionally, surface waters within the park are subject to jurisdictional oversight by the U.S. Army Corps of Engineers and the NCDWQ under Sections 401 and 404 of the Clean Water Act.

FIGURE 3.7: RIVER SUBBASINS

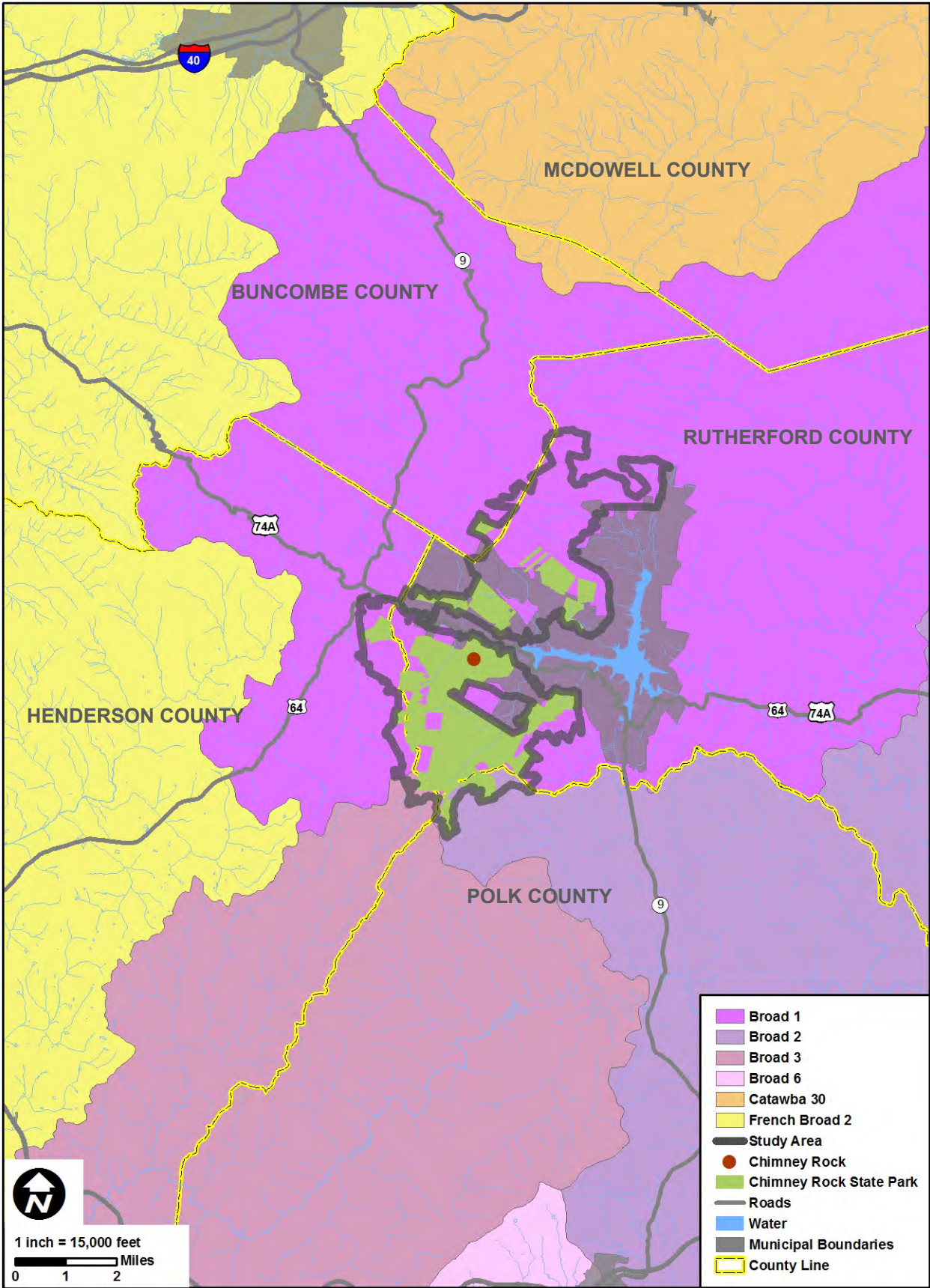
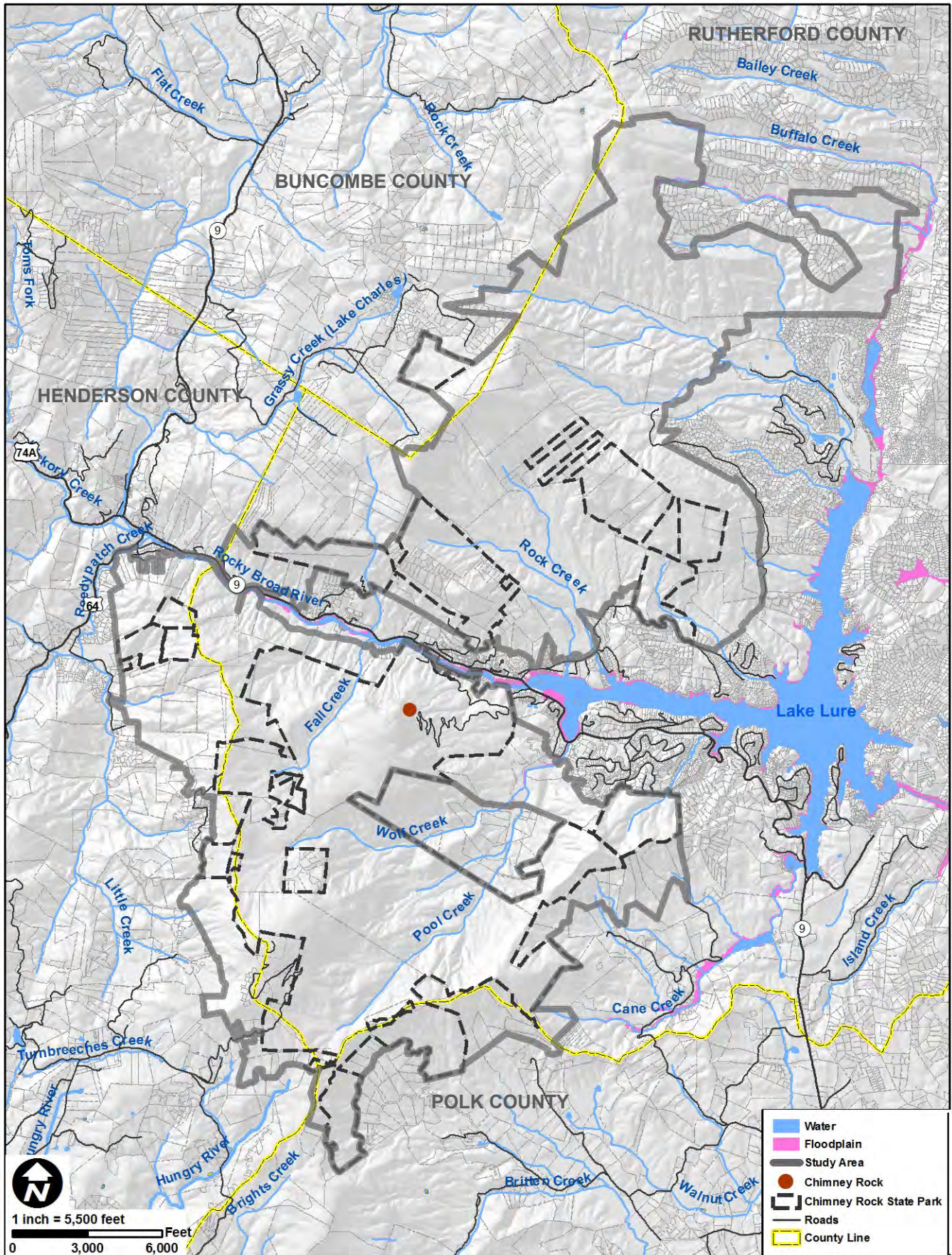


FIGURE 3.8: STUDY AREA HYDROLOGY





GEOLOGY

Chimney Rock State Park is located within the Inner Piedmont Belt, which is the most intensely distorted and metamorphosed segment of the Piedmont. The metamorphic rocks range from 500 to 750 million years in age. They include gneiss and schist that have been intruded by younger granite rocks (See Figure 3.9 from the N.C. Geological Survey).

Figure 3.10 illustrates the geology of the park and surrounding study areas as characterized by the N.C. Geological Survey (1998). Primarily the area is Henderson Gneiss, Porphyroblastic Gneiss, Biotite Gneiss and Schist. The feature of Chimney Rock is Henderson Gneiss while Rumbling Bald is Henderson Gneiss and Biotite Gneiss and Schist. To the south, Sugarloaf Mountain contains Caesars Head Granite Gneiss, Granite Gneiss, and Garnet Mica Schist.

The 1998 NCGS data also indicates the presence of one large fault paralleling U.S. Route 64/74A and the Rocky Broad River from the west to Chimney Rock State Park in the east. One smaller fault is also found in the south-eastern study area by Cane Creek Mountain. An additional fault outside the study area by the Hungry River is also shown in Figure 3.10.

The study area holds dozens of fissure caves and includes two of the world's longest augengneiss fissure caves at Bat Cave, which is owned and managed by The Nature Conservancy and Rumbling Bald. The caves' hibernaculum qualities make them a valuable resource for animals.

Due to the geologic conditions of the study area, further geotechnical studies may be required during the design development phase for any proposed construction project within the park.

FIGURE 3.9: NORTH CAROLINA GEOLOGY

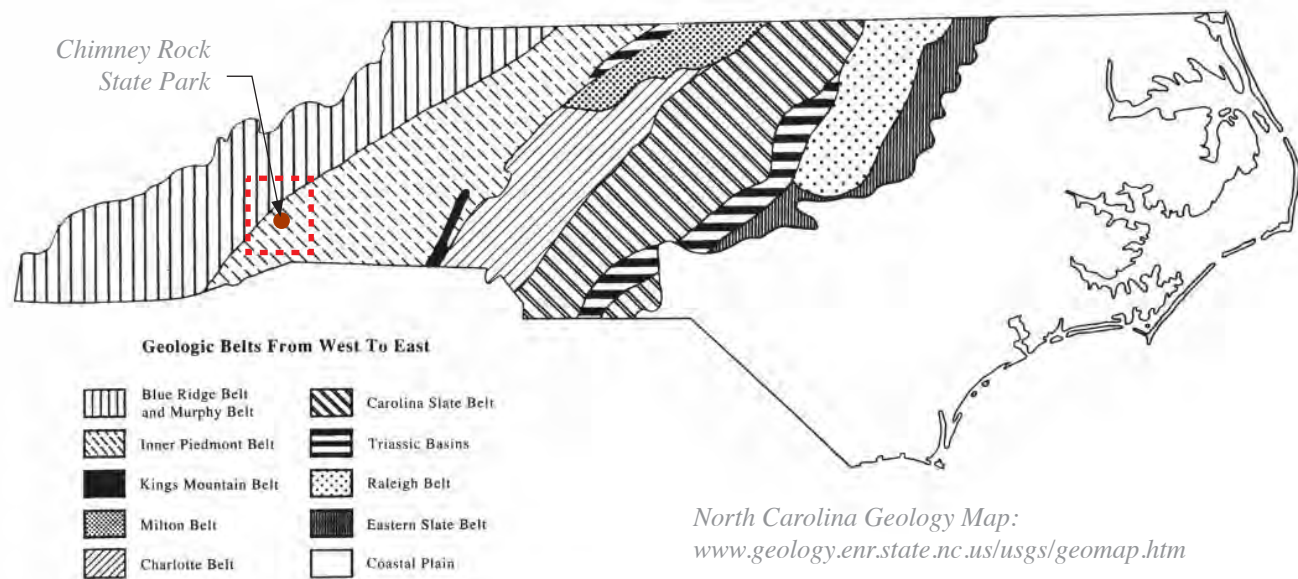
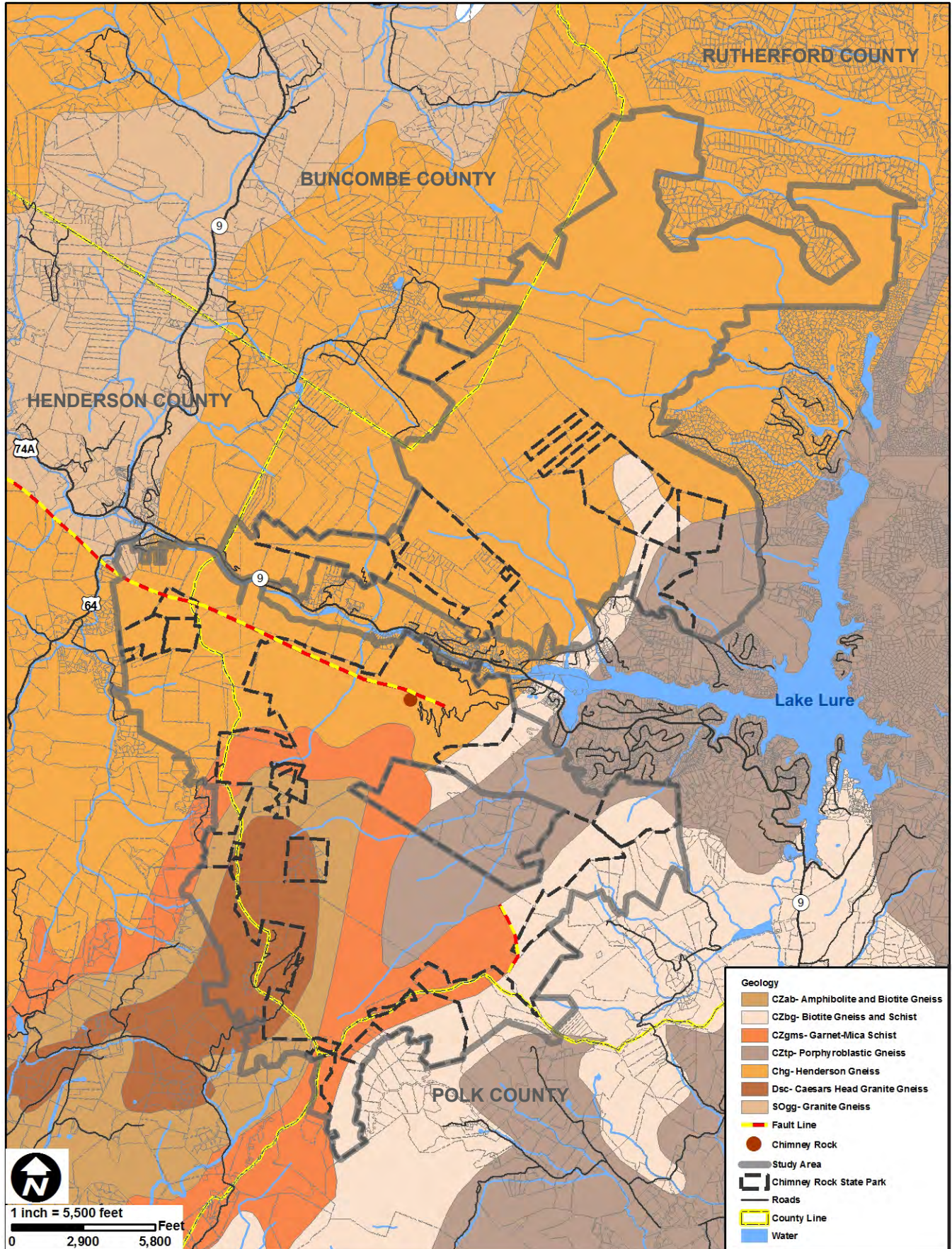


FIGURE 3.10: STUDY AREA GEOLOGY





SOILS

Figure 3.11 displays the many soil units in Chimney Rock State Park and the surrounding study area. Ninety-one different soil units are represented within this area from the data provided by the U.S. Department of Agriculture Natural Resources Conservation Service. Most of the soils within the study area are highly erodible due to steep slopes. A majority of the soils within the park boundary are limited in terms of their ability to support septic fields, small commercial buildings, road construction, campsites, trails, picnic areas, and/or playgrounds because of steep slopes, rock, and poor drainage. The map also displays hydric soils, which indicate the presence of wetlands. Hydric soils are defined as soils that form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper levels. These soils can be found along several small creeks and tributaries of the Rocky Broad River.



Typical example of exposed rock within the study area.